

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A black and white photograph of a beehive in a field of flowering trees. The beehive is a stack of three wooden boxes, with a fourth box partially visible behind it. It sits on a grassy field. In the background, there are many trees with white blossoms, likely cherry or apple trees. The title "Cleanings in Bee Culture" is superimposed on the upper part of the image in a stylized, gothic font. A circular library stamp is visible in the top right corner.

Cleanings in Bee Culture

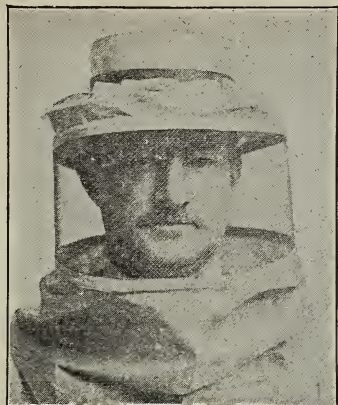
Gleanings in Bee Culture Magazine Clubs for 1916

GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$2.25
YOUTH'S COMPANION .....1 year, \$2.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$3.20
WORLD'S WORK .....1 year, \$3.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.60
PICTORIAL REVIEW .....1 year, \$1.50	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.50
THE MODERN PRISCILLA .....1 year, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.10
WOMAN'S WORLD .....1 year, .35	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.50
LITTLE FOLKS .....1 year, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$2.00
GARDEN MAGAZINE .....1 year, \$1.50	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.75
RURAL NEW YORKER .....1 year, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.30
FARM JOURNAL .....5 years, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.50
THE PRACTICAL FARMER .....3 years, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.15
OHIO FARMER .....1 year, .50	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.10
FARM AND FIRESIDE .....1 year, .50	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.50
AMERICAN POULTRY JOURNAL ..1 year, \$1.00	
GLEANINGS IN BEE CULTURE....1 year, \$1.00	} Both for \$1.10
POULTRY LIFE .....1 year, .50	

(Devoted to progressive poultry culture in the Northwest)

Because of additional postage required, these offers do not apply in Canada, in foreign countries, nor to residents of cities in which the magazines are published if extra postage is required to mail the publication to such subscribers.

Gleanings in Bee Culture, . . . Medina, Ohio



THE IDEAL BEE-VEIL

Oftentimes when out in the yard working with the bees one stoops over to pick out a frame, and, as usual, bees keep buzzing around his head, watching for a chance to sting. The cloth veil which is often used sticks to the face when one bends over, and gives the bees an opportunity to sting. The IDEAL BEE-VEIL is constructed of cloth of wire, there being a cord at the top of the veil used to pull the cloth around the crown of the hat. The lower part also has a cord which fastens around the waist. The wire on the IDEAL veil does not strike the face, and prevents the bees from stinging. It can be readily seen that a veil of this kind has the cloth veil far outdistanced for comfort and utility. Sparks from the smoker do not burn holes in the IDEALS as in the netting veil.

The veil is manufactured by us, and is recognized by the best and largest beekeepers as the most practical veil on the market.

Red Catalog, postpaid. "Simplified Beekeeping," postpaid.
Dealers Everywhere.

W. T. Falconer Mfg. Co. . . . Falconer, N. Y.

Where the good beehives come from.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the market mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,
FEBRUARY 6, 1915.

COMB HONEY

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and capping white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 12½ oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz.

net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.

Honey in badly stained or mildewed sections.

Honey showing signs of granulation.

Leaking, injured, or patched-up sections.

Sections containing honey-dew.

Sections with more than 50 uncapped cells, or a less number of empty cells.

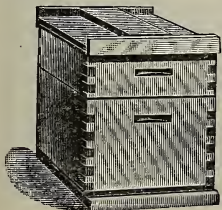
Sections weighing less than the minimum weight.

All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters, "W," "L A," "A" should be used in designating color, and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.



Early-order Discounts will
Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

STRAINED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.

Unripe or fermenting honey weighing less than 12 lbs. per gallon

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES
Adopted at Cincinnati, Feb. 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour, or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

CINCINNATI.—Very little honey is selling at present. We quote No. 1 comb at \$3.75 to \$4.00; No. 2 at \$3.50 to \$3.75; white clover extracted in cans, 7 and 9; amber in barrels, $\frac{1}{2}$ to 7, according to quality and quantity. For choice bright yellow beeswax we are paying 28 cts. per lb. delivered.

Cincinnati, Feb. 3. THE FRED W. MUTH CO.

ZANESVILLE.—The market shows no material change as regards demand or prices. In small lots the better grades of white comb bring around \$4.00 per case, jobbers receiving customary discount from prices to the retail trade. White extracted we quote at 9 to 11 cts., according to quantity. Producers receive for beeswax 28 cts. cash, 30 in exchange for merchandise.

Zanesville, Feb. 8.

E. W. PEIRCE.

DENVER.—Local demand for comb honey is light, with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1 per case, \$2.93; No. 2 per case, \$2.70; white extracted, $8\frac{1}{2}$ to $8\frac{3}{4}$; light amber, 8 to $8\frac{1}{2}$; amber, 7 to 8. We pay 25 cts. per lb. in cash and 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Feb. 4. F. RAUCHFUSS, Mgr.

ST. LOUIS.—The demand for both comb and extracted honey of late has been very mild, and we believe stocks here are quite ample to supply the demand. We are still quoting white comb honey, 24 sections to the case, at \$3.25 to \$3.50. Amber, \$2.50 to \$3.00; extracted honey in 60-lb. cans from 5 to 6, according to quality. Beeswax is firm at $28\frac{1}{2}$ for pure, impure and inferior less.

R. HARTMANN PRODUCE CO.

St. Louis, Feb. 7.

INDIANAPOLIS.—There is quite a demand for honey at present, but more especially extracted. Comb honey has been moving rather slowly of late. We are not buying any comb or extracted, but we are being offered honey by producers, and they seem very anxious to dispose of it. We are selling No. 1 or choice white comb honey at \$3.75 to \$4.00 per case; No. 2 white comb at \$3.50. Best quality of extracted is bringing $9\frac{1}{2}$ to 11 cts. We are paying 28 cts. cash or 30 in trade for good average wax delivered here.

Indianapolis, Feb. 4.

WALTER S. POWDER.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

**LEWIS' BEEWARE, DADANT'S FOUNDATION,
ROOT'S EXTRACTORS, SMOKERS, ETC.**

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O.

QUEENS FOR EARLY SPRING DELIVERY

We conduct a Bee and Queen Rearing Business in Florida during the winter, and at Canton, Ohio, during the summer. We now have a carload of selected Italian Bees in Florida for the purpose of supplying you with Bees and Queens for EARLY SPRING DELIVERY. WE GUARANTEE PURE MATING AND SATISFACTION IN EVERY RESPECT, OR MONEY REFUNDED. We are breeding from Queens that gave a surplus of 300 pounds per colony in a 24-day honey-flow. Will it not pay you to have this strain of bees in your yard? Prices as follows:

ISLAND-BRED ITALIAN QUEENS.

Shipments begin March 1.

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ...	3.00	15.00	24.00

Tested Breeding Queens,
\$5.00 and \$10.00 each.

Prices on Nucleus and Full Colonies without Queens. Shipping Now.

One-frame Nucleus ...	\$2.00	Three-frame Nuclei ...	\$4.00	Eight-frame Colony ...	\$ 8.50
Two-frame Nuclei	\$3.00	Five-frame Nuclei	5.00	Ten-frame Colony	10.00

Address all communications to

THE J. E. MARCHANT BEE AND HONEY COMPANY, CANTON, OHIO

PRICES ON BEES BY THE POUND F. O. B. SHIPPING POINT. Shipment begins May 10.

	1	6	12
½-lb.	\$1.50	\$ 7.50	\$12.00
1-lb.	2.00	10.50	18.00
2-lbs.	3.00	15.00	27.50
3-lbs.	4.00	21.00	36.00
5-lbs.	5.50	27.50	50.00

(These prices are without Queens)

QUEENS OF QUALITY

The editor of *The Beekeepers' Review* and his sons have 1100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt colonies desirable as breeders from a honey-producers' standpoint. Likely, never in the history of beekeeping was there a better opportunity to test out the honey-getting strain of bees than this. Think of it, 1100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor season (with us), while the average of the entire 1100 being not more than 40 pounds per colony. We have sent two of our best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben C. Davis, both of Spring Hill, Tenn., and they will breed queens for the *Review* during the season of 1916 from those four superior honey-gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three-banded strain of Italians; also that of John M. Davis; while Ben C. Davis breeds that disease-resisting strain of goldens that is becoming so popular.

By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as a breeder. We will tell you. They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review*, and one of those famous queens. These queens are well worth two dollars each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber to *GLEANINGS* a subscriber to the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address with remittance

THE BEEKEEPERS' REVIEW, Northstar, Michigan.



ITALIAN QUEENS THREE-BANDED

Ready April 1. Of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey-gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

John G. Miller, Corpus Christi, Texas
723 South Carrizo Street

If Your Bees Have Foul Brood

Get my queens -- 5 per cent off for cash orders in February -- Three-band and Golden Italians

One Untested Queen, \$1.00, six, \$5.00. One Tested Queen, \$1.50; six, \$8.00. One-frame Nuclei, \$2.00; 2-frame, \$3.00. Add price of queen wanted.
½ lb. bees, \$1.50; 1 lb., \$2.50.

W. J. LITTLEFIELD, LITTLE ROCK, ARK.
414 West 7th Street



Established 1885

It will pay you to get our 64-page catalog and early-order discount

Beekeepers' Supplies

The A. I. Root Co's brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Managing Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick, Grace Allen.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE.—E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 3 francs.

GOODNA, QUEENSLAND.—H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND.—Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

Contents for February 15, 1916

EDITORIAL	133	Hives in an Orchard.....	145
Goldens, Curse of	133, 146	Contract between Beekeeper and Orchardist	143
Follower-board a Nuisance.....	133	Increase from One to One Hundred.....	147
Smelter Smoke in Ontario.....	134	Bees, Distance They Fly.....	149
Bees in Orchards.....	134	Advertising Honey.....	151
L. C. Root at 75.....	135	Swarming Suppressed.....	152
Colorado Spraying Situation.....	135	Sugar, Heavy Feeding of.....	153
Shipping Bees in Combless Packages.....	136	Honey in Packed Super.....	155
Queen-cage Candy	137	New Experiences in Beekeeping.....	156
STRAY STRAWS	139	Bees and the Camera.....	157
Windbreaks	139	Wintering Over Empty Combs	158
Queens, Age of.....	139	Beekeeping in Louisiana.....	159
SIFTINGS	140	Beekeeping in Greece.....	160
Hairy Vetch for Honey.....	140	Foul Brood, Hershiser on.....	161
Honey for Army.....	140	Collapsible Winter Case.....	163
Oklahoma Foul-brood Law.....	140	Capping and Comb Melters.....	164
Sweet Clover in Vermont.....	141	HEADS OF GRAIN.....	167
Hawkweed, To Destroy.....	141	Wiring Frames	167
Henri Fabre	141	Honey of Wild Bees.....	168
BEEKEEPING IN CALIFORNIA.....	142	OUR HOMES	169
Snow in Redlands, Cal.....	142	POULTRY DEPARTMENT	170
BEEKEEPING IN THE SOUTHWEST.....	143	Christmas Chicks	170
Taking off Honey in Midwinter.....	143	Electric Vehicles	171
Foul-brood Inspection	143	Horses Replaced by Motor.....	172
CONVERSATIONS WITH DOOLITTLE.....	144	TEMPERANCE	172
Drouths, Do They Increase?.....	144	Whisky as a Medicine.....	173
GENERAL CORRESPONDENCE.....	145	John Barleycorn	173
Aphorisms by Miller.....	145	Kidney-cure Swindle	173

Honey market reports continued from page 2.

NEW YORK.—There is a very light demand for comb honey and light extracted. Buckwheat extracted has a fairly good demand at 6 to 7. Shipments from foreign countries are light, and the market is pretty well cleaned up on these grades. West Indian is selling for 50 to 55 cts.

New York, Feb. 9.

CHICAGO.—Little can be said in the way of reporting sales of honey during the past two weeks, for the reason that sales have not been made in any volume. January is always a dull month, and has been unusually so, as far as this market is concerned; consequently prices are nominal, concessions being made to induce business. The best grades of white comb honey are bringing 15 to 16; the under grades from 1 to 3 cts. less. Extracted white ranges from 7 to 9, according to kind and quality, and amber grades from 5 to 7. Beeswax brings 30.

Chicago, Feb. 4.

R. A. BURNETT & Co.

Convention Notices

The annual convention of the Pennsylvania State Beekeepers' Association will be held in the Chamber of Commerce, Lancaster, Pa., March 3, 4, 1916. An interesting program is in preparation. Every beekeeper, whether member of the association or not, is urged to be present. A good meeting is looked for.

H. C. KLINGER, Sec.

Liverpool, Pa., Feb. 1.

SPECIAL NOTICES

We have just finished printing 54,000 seed catalogs for our old-time friend Mr. A. T. Cook, of Hyde Park, N. Y., who expects to do a larger business this year than ever. You will remember Mr. Cook as an old advertiser of temperance cards as well as seeds. He has a good supply of both on hand, and is now ready to take prompt care of all his customers. Now is the time to begin thinking about that garden, and we are sure it will be a pleasure for you to look over Mr. Cook's catalog.

VALUABLE FREE BOOKS.

Every farmer who owns an engine or expects to buy one ought to know about engines—how to judge them, how to apply simple tests, how to figure exactly what an engine is worth. This interesting and valuable information is given in the free illustrated book, which will be sent without any obligations to any reader. Simply send name today to E. H. WITTE, 193 S. Oakland Ave., Kansas City, Mo.

EXPERIENCE VERSUS THEORIES.

The best products manufactured today are those which are built on experience. Now, we will take as an example Farm Fence, because this is an article that almost all farmers buy each year. A fence built on Shop Theories is one thing, but a fence built on experience to meet the farmer's requirements, one that has successfully stood the test for years and years, is quite another matter. Kitzelman Brothers, of Muncie, Ind., whose ad, appears in this issue, are making a fence that is built on experience. It contains many practical ideas of farmers themselves, as they have been selling their fence direct to the farmer for 33 years. They have learned from experience what a farmer's fence ought to be to give satisfaction from a farmer's standpoint. You should write for their free catalog at once if you are interested in securing a good grade of fencing at money-saving prices.

All poultry enthusiasts will be interested in the catalog recently issued by the Model Incubator Co., of Buffalo, N. Y., and New York city, bearing the title "First Aid to Poultry-keepers." Not only the beginner but the experienced well-versed breeder will find the catalog of the greatest help in all the many and varied problems of poultry-raising. Being compiled by authorities it is a book which should be in the hands of every one now in the business and every one who intends to enter the business. It is attractively gotten up, well illustrated, and substantial enough to be used as a

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

A.T. SPITZER
PRESIDENT

E.R. ROOT
VICE-PRESIDENT

E.B. SPITZER
CASHIER

ASSETS OVER ONE MILLION DOLLARS

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

HONEY-JARS

No. 25 screw cap, \$4.60 gross. Shipping-cases and cartons.
Amber honey, 7½ cts. pound; light honey, 8½ cts. pound. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries, Glen Cove, L. I.



Free for Testing

A pair of mated EVERBEARING STRAWBERRY PLANTS FREE if you will report as to your success with them. Will bear loads of big, red, berries from June to November. We have counted 480 berries, blossoms and buds on a single plant. A postal will bring the plants, also enough seed of the new CEREAL FETERITA to plant a row square of ground. Also a pkt. of perennial ORIENTAL POPPY seed. Send 10 cts for mailing expense or not, as you please. Write today and get acquainted with THE GARDNER NURSERY COMPANY Box 749, Osage, Iowa.

handy book of reference. You can do no better than send a postal request for the catalog if you are interested in the subject.

We call particular attention to the advertisement of Mr. Herman A. Clark, of Saratoga, Cal., who is advertising dried prunes. The editor visited his ranch last winter and was delighted to see the kind of fruit he is putting out. Mr. Clark is an old Medina County boy, well known to all the members of The A. I. Root Company, and we can vouch for his responsibility. Any one who gives him a trial order will be almost sure to give him a repeat order as his goods are first-class in every respect.

PRACTICAL BOOKS FOR THE GARDENER AND THE FARMER.

The above is the title of a four-page leaflet we have just finished printing. This contains a list of standard practical books which answer questions that occur every day. They tell what to do. They are written for the specific use of the gardener and farmer, amateur or professional, furnishing the latest and most authoritative information on every phase of agricultural or horticultural work, on a large or small scale. An edition of 5000 of these leaflets is just off the press. Send for one so you can decide which books will be of the most benefit to you. THE A. I. ROOT COMPANY, Medina, Ohio.

NOW IS THE TIME

To order your supplies, and thus
have every thing in readiness for
the spring besides saving 2 per cent

We carry a full line of Root's Goods at all times, and are always prepared to fill any and all orders on short notice.

Hives, supers, frames, sections, comb foundation, section-presses, foundation-fasteners, queen-excluders, queen and drone traps, swarm-catchers, feeders, honey and wax extractors, capping-melters, honey-knives, honey-tanks, honey-packages, shipping-cases, bee-escapes, bee-veils, bee-gloves, bee-brushes, smokers—in short, everything the bee-keeper requires for the proper conduct of an apiary.

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

Beekeepers' Prescription Book

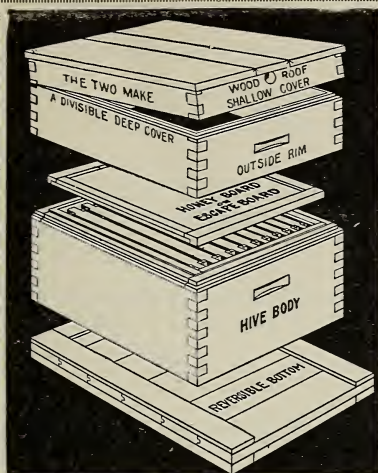
For Failures,
Discouragements, etc.

R_____

One Root Catalog giving description
and prices from which an order
is made out and sent to

(Signed)

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.



PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio Rivers.


Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order): Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market.

ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1916 and let us figure with you.

A. G. Woodman Co., Grand Rapids, Mich.



Your BEESWAX
Manufactured into
"Superior" Foundation
on shares. Write for special prices.
SUPERIOR HONEY CO.
Ogden, Utah
(Weed Process)



Beehives and Supplies
at factory prices; satisfaction guaranteed or your money refunded.

Please write us today for our catalog and special discount to new customers

W. H. FREEMAN, PEEBLES, O.

The Beekeepers' Review Clubbing Offer for 1916

The REVIEW for 1916	\$1.00	ALL FOUR FOR ONLY \$3.00
Oct., Nov., and Dec., 1915, free		
American Bee Journal for 1916 . .	1.00	
Cleanings for 1916	1.00	
One REVIEW HONEY QUEEN	1.00	
Total	\$4.00	

For description of REVIEW QUEEN see another page.
Address with remittance

The Beekeepers' Review, Northstar, Michigan

Pennsylvania BEEKEEPERS!

Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

The Leading House in
New England for
Beekeepers' Supplies
and a Prompt Shipment Promised

I also have some nice grade Vermont Pure Maple Syrup which I can offer at \$1.25 per gallon, f. o. b. my station.

Robert G. Coombs
Guilford, Vt.

LOS ANGELES HONEY CO.
633 Central Bldg. . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write Us for Prices when in the Market

Candy for WINTER STORES

Why not be sure your bees have enough for winter by giving each colony one or two plates of candy? We have it in large paper plates weighing about two pounds, enough to last a colony three or four weeks. Can be sent by post. Write for prices, also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

BEE SUPPLIES Send your name for new 1916 catalog out in January.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Ave., Kansas City, Mo.

Equipment purchased during the quiet winter months may be made ready for busy spring and summer months. The early-order discount pays you interest on your money.

"Root Quality" equipment means BEST QUALITY equipment. The Root bee supplies are up to the minute. The most complete line of bee supplies made.

We sell Root's Goods in Michigan. Order from Root catalog, or we will quote on request. February, cash discount, 2 per cent. Beeswax wanted.

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.

When You Think of Bee Supplies, Think of Indianapolis

We Sell Root's Bee Supplies
----the Goods that Satisfies....

Indications just now are very favorable for a good season next year. A good season means an excessive demand for Root's goods at Root's prices. By ordering now you will receive your goods promptly, also save the cash discount for early orders, which is two per cent in February, and you can put them together in your spare time.

If you are interested, and it is your intention to order your supplies before goods are really needed, just try placing a trial order here. We are quite sure you will continue with us year after year. Some, of course, never buy supplies till after they are needed. But the men who are most successful are preparing right now for next season.

We allow you 30 cents a pound in trade for good average beeswax delivered here.

Finest extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

"Next Door to Everything"

Reads the advertisement of a great railway terminal. "Next door to everything in Beedom" fittingly describes our location. In the bee-supply business, distance is measured, not in miles but in hours and minutes; and the house that gives first service is nearest the beekeeper.

Tho but a short distance from the geographical center of Ohio we are yet so near to West Virginia and Pennsylvania, and so closely connected by transportation lines, that we are truly "next door."

Some idea of our importance as a distributing center may be gained from the fact that more than fifty mails arrive and as many depart daily, and almost a hundred freight and express trains enter and leave the city every twenty-four hours.

Then our location in the city is most accessible. Our office and warerooms are just off the main business thoroughfare, in the heart of the wholesale district, and only a stone's throw from depots, post-office, and the large retail stores. Beekeepers and their friends are earnestly invited to make our store their headquarters when in the city.

The best goods and service justify us in promising our customers the fullest measure of satisfaction.

February cash orders are subject to a special discount of 2 per cent off catalog prices. Clover looks most promising for the coming season, and it is the part of wise foresight to prepare carefully the bees for winter, and anticipate all possible requirements.

E. W. Peirce,

22 So. Third St. Zanesville, Ohio

The Eyes, Ears, and Mouth are Near Together

To see birds, hear their music, and taste honey are a happy trio.

There is a new and enlarged
Bird Department
in the
Guide to Nature

Send twenty-five cents for a four-months' trial subscription

Address: ARCADIA, Sound Beach, Conn.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know anything about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said, "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, altho I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and alont the man who owned it.

But I'll never know, because they wouldn't write and tell me. You see, I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear thru the filters of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back, and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in wash-woman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line today, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1623 Court St., Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ontario.

1916--Advance Lewis Bee-supply News--1916

THE NEW LEWIS CATALOG this season, like BARNUM'S CIRCUS, is better, bigger, and grander than ever.

As a progressive beekeeper, you read the bee-journals, all the bee-books you can get, and attend the conventions, BUT—

IF you do not get the LEWIS CATALOG FOR 1916 you are neglecting a liberal bee education. In no other form can you get so much good, meaty knowledge about bee fixtures, apparatus, tools, and whatnot as you can right in the LEWIS CATALOG—and the pity of it is, the man who does not avail himself of this opportunity passes up that which he may have for the asking—for it is free.

Send Right Now for a New Lewis Catalog

Here are Only a Few of the Distinctive Features Contained in It.

Our NEW METAL-BOUND DIVISION-BOARD in the full-depth size is to be found illustrated, described, and listed.

A very good tool in the shape of a KNIFE FOR SCRAPING AND CLEANING FILLED SECTIONS is illustrated, described, and listed.

A WOVEN WOOD-AND-WIRE CHEST, which is a low cost article with many uses, is illustrated, and described.

One page is given over to the RAUCHFUSS FOUNDATION CUTTING-BOX, a practical little outfit for the beekeeper.

Two other articles, a SECTION-HOLDER NAILING-FORM and FRAME WEDGE DRIVER are offered.

Two whole pages of INSTRUCTIONS TO BEEKEEPERS BY C. P. DADANT will be found interesting to the old beekeepers as well as the new.

One page devoted to the PROSPECTIVE BEEKEEPER is very interesting, and many new thoughts are presented.

Published only by

G. B. Lewis Company,

Manufacturers of
Lewis Beeware

Watertown, Wisconsin

Get Your Copy Now.

SWEET - CLOVER SEED

Quick Germination

Get our "Scarified" Sweet-clover Seed, which will germinate from 85 to 95 per cent the first year, and thus insure you a good stand right from the start. By sowing our seed you will save money, as it takes only about half as much scarified to sow an acre as ordinary hulled seed.

Prices	1 lb.	10 lb.	30 lb.	100 lb.	60 lb. a bu.	5 bu. a bu.	10 bu. a bu.	Lbs. per acre
Unhulled White, recleaned.....	\$0.25	\$2.00	\$5.10	\$16.00				
Hulled White, recleaned and scarified	0.30	2.75	6.75	22.50	\$13.50	\$13.00	\$12.50	25 to 30
Hulled Yellow, recleaned and scarified	0.20	1.80	5.10	17.00	10.20	9.50	9.00	6 to 10
(<i>Melilotus Officinalis</i>)								8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel-post shipments.

Please Note—All of our seed is thoroly cleaned. The scarifying process usually breaks some of the seeds, and we remove all broken seeds. This is an important saving to you. Samples on application.

Dadant & Sons, Hamilton, Illinois

YELLOW SWEET CLOVER.—Many people fail to recognize the value of the biennial yellow sweet clover as a honey-plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper. Be sure, however, to get the biennial variety as quoted above.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

A. I. Root, Editor Home Department

J. T. CALVERT, Business Manager.

H. H. Root, Managing Editor

E. R. Root, Editor

A. L. BOYDEN, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLIV.

FEBRUARY 15, 1916

NO. 4

EDITORIAL

A Short Course in Apiculture in Indiana

OUR Indiana readers, at least, will be glad to know that there will be given a short course in bee culture at the Winona College of Agriculture, Winona Lake, Ind., during the week of March 20. We hope to present the program of the work later on.

Varying the Size of the Entrance During Winter

IN the case of outdoor-wintered colonies be sure that the entrance to the passageways is not clogged with dead bees. When the bees are confined at the home yard the entrances may be contracted during severely cold weather, or during a time when there is a high wind, to advantage; but it should be enlarged when the weather moderates. In making the contraction, do not disturb the bees.

The Curse of Goldens

ONE would almost think that we had inspired Mr. Arthur C. Miller and Mr. S. H. Burton to write their articles on goldens in this issue. Quite the contrary. As a matter of fact, we believe Mr. Miller, at least, is a little hard on them, for not all goldens that we have had any experience with were as bad as those he describes. The California Beekeepers' Association, Mr. Chadwick reports, also knocks them.

The average beeman should understand that when he buys queens or colonies of the extra-yellow strain he buys some good and some bad.

A Correction; Those 4100 Cases of Honey

IN William Lossing's letter, page 2, editorial department, we inadvertently in the copy made him say he produced 4100 cases of honey, when it is evident that he meant to say that he had only *shipped* that number. If he had produced this amount of

honey he surely would be some beekeeper. Many are writing him, desiring to know if there are other locations like that, notwithstanding the territory he says is already overcrowded. It surely would be good bee country if there were many beekeepers producing 4100 cases of honey.

Our apologies are due to Mr. Lossing and to the beekeepers in the valley, several of whom we know personally, having visited them some years ago.

Lectures and Demonstrations in Connecticut

THE trustees of the Connecticut Agricultural College have engaged A. W. Yates, of Hartford, to give a course of lectures on beekeeping, accompanied by demonstrations. The lectures will be given on Saturdays during April and May, and will be open to students and others who may be interested in this subject. The topics of the lectures are as follows:

1. Establishing an apiary. Natural history, hives and location, adaptability of the person.
2. Comb and wax. The mystery and origin of wax, its relation to honey, commercial value.
3. Spring management. The early necessity of a force of young bees to care for the queen, spring dwindling, stimulative feeding.
4. Diseases of bees. Causes, how to detect, treat, and prevent.
5. Increase and queen-rearing. The importance of good queens, easy methods of rearing and making increase.
6. Wintering. Providing the colonies with sufficient stores in a compact brood-nest, packing, ventilation, and feeding.

The Nuisance of the Follower-board or the Division-board in the Modern Hive

REFERRING to what Mr. J. E. Crane has to say on page 141 in commenting on the statement of E. F. Atwater on the flimsiness of the average division-board in the modern hive, we may offer this suggestion:

Leave it out entirely. We have been doing it for the last two years, and use it only when there is less than a full complement of frames in the hives. In our opinion a clumsy thick follower-board in a ten-frame hive with nine frames will not help matters much. What we need is extra room without a follower-board.

That room is not needed with the ordinary unspaced frames that can be squeezed closer together to remove the one desired. But with the self-spacer there is or should be, at least, extra room in the hive. By removing that naughty division-board, and keeping it out where you have a full complement of frames, with either eight or ten frame hives the extra room will be provided.

First Annual Report of the Minnesota Inspector of Apiaries

MR. CHARLES E. BLAKER, the State Inspector for Minnesota, has just put out his first annual report. It is unfortunate, as Mr. Blaker says, that up to 1915 there is no available record of inspection work in the state, which handicaps the work somewhat.

So far the work has been chiefly with American foul brood, as the European type of the disease has not made much of a start. It was reported in 1914, and then discovered in several other points in 1915. On account of the danger existing when this disease becomes prevalent, a full description is given of it, methods of treatment, etc., along with descriptions and methods of treatment of American foul brood and of sacbrood.

Out of 452 apiaries visited, disease was found in 57; 7114 colonies were examined, and 269 found diseased.

Beekeepers of Minnesota may obtain a copy of this report on application to Chas. E. Blaker, Inspector, 4420 Grimes Ave., Minneapolis.

Bees and Smelter Smoke, again

In our issue for Dec. 15, page 915, we stated that the beekeepers of Ontario, Canada, were about to bring suit against a silver-smelting company for alleged damages to their interests in the sum of \$30,000. We have heard nothing further from this, altho the case was to come up in the courts in November. Whether it has been settled we are unable to say. At all events, we learn from a clipping from the *Illustrated Buffalo Express* of December 19 that means have been discovered for eliminating almost entirely the injurious effects of smelter smoke on either plants or animals. As the

Buffalo paper is published near the scene of the trouble referred to, it is possible some compromise has been effected, or that the damage claimed is merely nominal.

It appears that the new means of filtering the smoke prevents the incrustation of certain chemicals on vegetation which, when eaten by animals, caused more or less trouble. No mention is made of bees in the clipping referred to.

If any of our subscribers in Canada or the United States know the outcome of the Ontario case we shall be glad to have them write us.

The Importance of Scattering Colonies of Bees in Fruit Orchards

IN this issue, page 145, Mr. J. E. Crane brings out a point that is worth the careful attention of every fruit-grower and beekeeper; namely, that bees in orchards do better work in pollinating the blossoms if the hives are *scattered* throuth the orchard. That has been our policy where we put out bees in this way. If the season is a little unfavorable the trees nearest the bees will show more fruit than those further removed.

Mr. Crane mentions that a prominent fruit-grower stated before the Vermont Horticultural Society that he scatters the bees all thru the orchard, "with the result that in seasons when during fruit-bloom it is cold and cloudy the three or four trees close to a hive of bees were much more fruitful than those further away." Mr. Crane draws the conclusion that "as we are apt to have a great deal of such weather in northern New England this season of the year," this is a "very important consideration."

Beekeepers will get calls for bees to be located in fruit-orchards more and more; and what is an advantage the fruit-grower is also to the advantage of the beekeeper—more pollen more brood, and more returns when the honey-flow comes on in June and July.

Bee Inspection in Idaho

THE sum of \$3000 was appropriated by the Legislature for bee inspection in Idaho during 1915 and 1916, which is more than double the amount ever expended before for the same period. This has made it possible for the inspection to cover much neglected territory.

State Horticultural Inspector Graham, in his annual report for 1915, says that 3648 colonies were found diseased, or were kept in box hives in violation of the law, out of

30,511 colonies inspected. There were 2639 colonies treated, and 1009 were destroyed.

Mr. Graham estimates that 1,780,000 pounds of honey was produced in the state during the year, valued at about \$175,000. Probably two-thirds of the honey was shipped out of the state.

We have taken these figures from a brief review of the report in *The Idaho Statesman* for January 26.

Bran Cookies

We wish to call especial attention to one of the honey recipes in *Farmers' Bulletin* No. 653, "Honey and Its Uses in the Home," of which mention has already been made in these columns. The recipe entitled "honey bran cookies" No. 2 we have found to be exceptionally fine. Not only are these cookies of delicious flavor, but containing, as they do, the ingredients of bran and honey, they are very fine for building up bone and tissue, and also have a mildly laxative effect. We have found that the addition of one or two eggs to the recipe improves the cookies somewhat. Here it is:

Three cups bran, $\frac{1}{2}$ cup sugar, $\frac{1}{4}$ to $\frac{1}{2}$ teaspoonful soda, $\frac{1}{2}$ teaspoonful cinnamon $\frac{1}{2}$ teaspoonful ginger, $\frac{1}{2}$ cup honey, $\frac{1}{2}$ cup milk, $\frac{1}{2}$ cup butter, 2 eggs if desired. If the bran is coarse add a little flour. Mix the ingredients thoroly, and drop from spoon on to a buttered pan and bake about 15 minutes.

L. C. Root, Son-in-law of Moses Quinby, still Young at 75

MR. LYMAN C. ROOT celebrated his 75th anniversary at his home recently. Besides the numerous friends who came to call on him, many letters of congratulation came from far and wide.

Mr. Root will be better known to the readers of *GLEANNINGS* when we say that he is a son-in-law of the late Moses Quinby, the author of "Mysteries of Beekeeping Explained," and also of the only reliable cure for American foul brood. After Mr. Quinby's death Mr. Root revised the work. This was in 1884. So complete and thoro was the revision that the publishers said that he "might in justice have claimed to be its author; but with rare modesty, and in a spirit of reverence to one who had devoted his life to the advancement and popularizing of bee culture, he preferred to retain the title of Quinby's 'New Beekeeping.'"

Our readers will remember that Mr. Root, in our Quinby number of last year, had an article on page 267, April 1st issue, telling something about Quinby's old home and

relating some reminiscences of his father-in-law who in the olden days, without movable-frame hives, made money from his bees, and who one year produced so much box honey that he broke down the honey market of New York. But this was away back in the early '50's.

The career of Mr. Root, the son-in-law, has been no less remarkable. In the early days he was a well-known contributor to *The American Agriculturist* and *The Country Gentleman*. While he has not done very much with bees since his removal from New York to Connecticut, he has been an active factor in civic life in the state of his adoption. He has held varied positions of honor and trust, having been recently elected member of the State Board of Trade of Connecticut, and for a number of years he was treasurer of the Stamford Board of Trade and a delegate to the State Board. He is treasurer of the Civic Federation, and an active member of the Universalist Church and of its men's forum. In politics he is a Prohibitionist; but, nevertheless, while milk inspector he served under a Democratic mayor and a Republican council.

Those who had the pleasure of hearing the address he delivered at the Jenkintown field meet, where there were nearly a thousand beekeepers present, will remember Mr. Root not only as a man of ability but one of exceedingly pleasant face that bespeaks the character of the man. Like our Mr. A. I. Root, to whom he is not related, he carries us back to the olden days when beekeeping in America, and practically in the whole world, developed from the old box hive to the modern movable combs, section honey-boxes, comb foundation, and the extractor. Both the Roots are within one year of being the same age, and in all these years they have been good friends.

The Colorado Spraying Situation, again

ONE of the prominent apple-growing districts is western Colorado. As would naturally be expected, beekeeping interests are also well represented there. Altho honey-producers ought to be on the best of terms with the fruit-growers, their interests being so closely intertwined, unfortunately peace does not always prevail. Spraying seems to be the cause of the disturbance.

Of course, there is always present, more or less, a dispute on the pros and cons of spraying while the blossoms are on the trees. This was enough to call out a quarrel had it not been that a new situation developed along with an advance in methods of orchard practice. At one time clean

cultivation of the ground under the trees was the rule; but a short time ago the orchard men began planting sweet and red clover for soil-renewal purposes.

Here the trouble began afresh. The poisonous spray dripping from the trees, and sprinkling the clovers beneath, it was claimed, was poisoning their colonies in great numbers. The red-clover cover crops would come into bloom when there was a dearth of honey from any other source. The arsenate of lead, when sprayed on the trees after the petals on the trees had fallen, would drip on to the clover-blossoms where the bees were working. From a personal canvass of the situation we were convinced the bees were killed by the spray. A complicated discussion ensued, part of this thru the columns of GLEANINGS IN BEE CULTURE, and part of it in correspondence. In the following summaries of their argument the chief parties to the discussion hit the high spots of the question.

J. G. Brown, a Colorado beekeeper, called the attention of the beekeeping public to the situation last August in an article in GLEANINGS, in which he stated that bees had been poisoned by the spray falling on red clover. Beekeepers were moving their colonies to more favorable locations.

Dr. E. F. Phillips surmised that the losses were due to European foul brood. To his statement J. A. Green replied that he had lost too many colonies to be convinced that the damage came from anything else than spray poisoning. He wrote an article in GLEANINGS on this situation several years ago.

It was the opinion of B. W. Douglas, formerly State Entomologist of Indiana, that the beekeepers in Colorado were needlessly excited. The dripping from the trees, he contended, could not poison the clover blossoms underneath when so much greater pressure is needed to force the poison into the blossoms. In the second place, only an inexperienced grower would use so much material that it would slop over on the ground.

C. P. Gillette, State Entomologist of Colorado, wrote that he knew positively that much damage had been caused by spraying during fruit bloom, but he lacked conclusive evidence that bees had been poisoned in working on the clovers. Thoro spraying, he averred, always resulted in a large amount of drip.

Neither spraying the blossoms nor spraying while the clover is in bloom is sane horticultural practice, according to Dr. H. A. Surface, of Pennsylvania. No fruit-grower, he said, should leave a cover crop

until it blooms. He agreed with Douglas that it is poor practice to use so much spray.

Dr. A. J. Cook, Horticultural Commissioner of California, was well satisfied that the sprays falling on the cover crops of red clover would and did kill bees. The whole difficulty could be eliminated, he said, by using the annual sweet clover for a cover crop that would come into bloom at a time when the trees would not be sprayed.

Our sympathies naturally go out to the beekeepers. We are convinced that bees are killed by the thousands in Colorado by the sprays that fall upon the red-clover cover crops. The fact that the colonies immediately build up as soon as they are removed from the vicinity of the orchards, and die outright when left there, is significant. See what Wesley Foster says in his department in this issue.

Shipping Bees by Express in Combless Packages versus Shipping them by Freight with Combs, Hives, and Equipment

FOR some time back we have been coming to the conclusion that sending bees by freight in ear lots—hives, combs, and all—is a very expensive way of moving bees. In the first place, it is a little difficult to make a carload of bees come up to the minimum weight on which freight must be based. Those who have had experience in shipping bees know that all colonies must be light, and it is not easy to crowd in enough light colonies to make up the minimum weight.

In our several shipments from north to south, and *vice versa*, we have found that the strong colonies would not go thru nearly as well as the weaker ones. To put it in another way, a colony of moderate weight will have more bees and brood alive and in good condition on arrival at destination than a strong one. Two and a half to three pounds of bees, with double screen top and bottom, to a single brood-chamber, will ship better than four or five pounds. Of course, if one uses two-story hives he can ship more bees; but the ratio of difference will be about the same.

It has been our experience that it costs about \$1.00 per colony for freight on bees from Florida to Medina. When we add the cost of cartage at both ends of the line, the cost of crating, which amounts to \$40 or \$50, and cost of a man's transportation both ways, the cost per colony runs \$1.50 per colony. To prepare a hive of bees, screened top and bottom—hives, combs, and all—it is worth, we will say, \$4.50 includ-

ing a queen. The cost of getting that colony of bees to the North will run somewhere about \$1.50. If we add the risk that one takes, delays en route, and double time of a man on the basis of 40 cts. an hour, and his railroad transportation, the entire cost per colony runs up to nearly \$2.00. This will make the total cost about \$6.50 per colony placed in the yard.

Let us now look at the other proposition of sending bees without combs by express. If we could send bees and brood without combs or hives we could figure out the proposition a little more exactly. As this is impossible the only thing we can do is to figure the brood in the form of bees. We usually reckon that about 3 lbs. of bees, with necessary crating, will aggregate 7 lbs. On this basis 30 lbs. of bees will run about 70 lbs.

Our traffic manager, after corresponding with different railroad and express companies, has prepared a table of prices in shipping combless bees from three or four different points in the South to various points in the East. The following is the table:

Live Bees from Fitzpatrick, Ala., to				
	2 lbs.	5 lbs.	7 lbs.	10 lbs.
Cleveland .....	.45	.57	.66	.77
New York .....	.47	.60	.71	.84
Chicago .....	.45	.56	.63	.74
Medina, O. ....	.45	.57	.66	.77
From				
Kansas City, Mo., to				
Cleveland .....	.45	.56	.63	.75
New York .....	.47	.63	.72	.86
Chicago .....	.44	.51	.57	.65
Medina, O. ....	.45	.56	.63	.75
From				
Jacksonville, Fla., to				
Cleveland .....	.48	.63	.74	.89
New York .....	.47	.60	.71	.84
Chicago .....	.47	.67	.71	.86
Medina, O. ....	.48	.63	.74	.89
From				
Apalachicola, Fla., to				
Cleveland .....	.48	.63	.74	.89
New York .....	.48	.65	.77	.93
Chicago .....	.47	.60	.69	.83
Medina, O. ....	.48	.63	.74	.89

For example, a 3-lb. package from Fitzpatrick, Ala., which would be equivalent to 7 lbs., would run about 66 cts. to Cleveland; 71 cts. to New York; 63 cts. to Chicago; 66 cts. to Medina, and so on the prices run from 60 to 75 cts. from all the different points.

But some will argue that three pounds of bees from the South is not equal to an ordinary colony in the spring in the North. Well, suppose we make it 4 lbs. Even then the express per colony will be less than \$1.00.

Compare this figure with the freight, \$1.50 to \$2.00 per colony, and you will see that the combless package of bees by express is considerably cheaper, providing, of

course, that the shipper *guarantees* arrival in good order. There are three or four breeders in the United States who are willing to do this.

But there is still another way of looking at it. Two thousand pounds minimum of bees, combs, hives, and all by freight from Apalachicola, Fla., to Medina, Ohio, would run up to \$349.20. Two hundred and eighty-five 7-lb. packages (each containing 3 lbs. of bees) by express, aggregating 2000 lbs. would run up to \$253. To the freight shipment we must add 50 to 100 per cent more. To express shipments we add nothing. It will be seen that the figures stand largely in favor of sending by express. But this is not all. Bees sent by express will not take over two or three days from the South to the North, while by freight it will take from a week to ten days to get them thru, with a corresponding damage to brood and bees. Still again, when bees are sent by freight, unless extraordinary care is taken to water them at intervals, the unsealed brood is destroyed and sometimes sealed brood is scorched by the bees becoming too hot.

There is one more point to be considered, and it is important. When one wants to move 300 colonies he cannot very well shake off all the bees and let the brood die; and, moreover, he cannot send the bees by express unless he has a full complement of combs and hives at the other end of the route. But the average beekeeper in the North who has lost heavily by wintering can easily recuperate his losses by getting his bees by express.

Last, but not least. When full hives, combs, and brood are shipped, there is also danger of transmitting bee disease. There is very little likelihood of such danger by express.

A California Man Succeeds in Sending Bees by the Pound in Large and Small Lots; Invert-sugar Queen-cage Candy Not an Unqualified Success in Shipments

IN reference to shipping bees in pound packages, which appeared in our columns recently, Mr. J. E. Wing, of San Jose, Cal., one of the most extensive queen-breeders in the country, and who has done a large business in shipping bees successfully without combs, writes:

I have been reading the editorial on page 744, Sept. 15, and Mr. W. D. Achord's article on page 1031, Dec. 15th issue, on the pound-package business with interest, as I do quite a bit in that line myself. Out of

about 1500 pounds shipped in 1915 my loss was not one per cent, and some of the shipments were not easy ones. I sent a small shipment to New Jersey for an experiment, and they arrived with only a few bees dead. Other large lots went to Colorado, Idaho, Nevada, Oregon, Washington, Utah, Oklahoma, and all parts of California. One place in this state I consider quite a hard shipment in the middle of summer, and that is Imperial Valley. For such conditions where the weather is extremely hot I do not agree with Mr. Achord that water is not necessary. I use the Root one and two pound cage exclusively; and as the cages are very substantially made I make arrangements when sending a large order to have the empty cages returned. In this way I am able to save the buyer a little money, and also myself, and I find the cages are good for a number of trips.

I received many inquiries from British Columbia the past season for bees by the pound from people who are very anxious to buy bees that way. I shipped there during 1914 with never a single loss; but they now have a quarantine law which bars the shipping of bees in any form from the United States. Their beekeepers there are up in arms against the law, and it seems to me if they could be made to understand that disease could not be sent in with the pound packages, perhaps they would modify the law to allow bees to be shipped in without combs.

In one of your letters last summer you mentioned writing to Dr. Phillips in regard to something better for queen candy. I have had no success at all in sending queens to Australia when using candy made with invert sugar, but with short shipments it seems to be all right.

San Jose, Cal., Jan. 9. J. E. Wing.

There are two or three points in this letter which are of more than ordinary interest. The first is that he as well as Mr. Achord has been shipping bees in pound packages successfully, and with a loss of only one per cent. What Mr. Achord, Mr. Wing, and others have done, others can do.

We show elsewhere that bees without combs can be shipped by express in pound packages for less money than colonies of shipping weight of equivalent capacity can be sent by *freight in car lots*. When we say "equivalent capacity" we figure three pounds of bees as more than equal to three pounds of bees in a colony with a little *sealed* brood. It is not practicable to ship stronger colonies than three pounds by freight, hive, combs, and all, and of course all the *unsealed* brood dies *en route* unless one is unusually successful, as we have been a time or two, by giving the bees water before they ate up their larval food.

Three pounds of fresh bees, placed on

good combs in a good hive, by May 1 will make a fair colony to start in the business. Such a colony ought to be better than 3 lbs. of bees that have suffered the rigors of winter, and possibly may die in a few days. While it is true that wintered-over bees would have brood in various stages to replace those dying, much of that brood is chilled by unfavorable weather. We have had some bad spring dwindling after May 1, and considerable after April 15. Three pounds of fresh bees by May 1 will be able to stand more extremes of weather than wintered-over bees. But suppose the 3 lbs. of bees are not the equivalent of three or four pounds wintered over. It costs anywhere from 60 cts. to \$3.00 in stores, depending on the amount and kind of stores used to bring a colony thru winter.

Understand, we are not at this point advocating that a beekeeper in the North should brimstone his bees in the fall to save the stores; but here is a condition that is not uncommon: Many wintered-over colonies that have a mere handful of bees and a queen, if given fresh bees from the South, will be in shape to gather honey by June 15 when white clover comes on in most localities. Frequently there are oceans of clover, but not the bees to gather the nectar because of a severe winter just preceding.

Mr. Wing brings out another point; namely, that invert sugar as a food for pound packages and for queen-cages does not take the place of honey. Our experience during the past year proves that he is probably right. We had more losses in transmitting our pound packages and our queens in mailing-cages during 1915 when we used invert sugar exclusively than when we used a food made of powdered sugar and *unboiled* honey. A *boiled* honey appears to be inferior to a candy made of invert sugar syrup. It would seem then that in order to make successful shipments of bees and queens long distances we shall have to secure a honey of the finest table quality from a yard where there had been no foul brood for two or three years back.

Our own and Mr. Wing's experience, contrary to that of Mr. Achord's, shows that water during very hot weather helps materially to get combless bees thru in good order.

Mr. Achord has demonstrated beyond question that the old cages for bees in half-pound, one-pound, and two-pound sizes were a little too small. We have already made arrangements to enlarge ours, and shall probably continue to use water during hot weather. It can do no harm, and may be of great assistance.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



IT is predicted in European bee journals that the great war will give quite an impetus to beekeeping. Well, I'd rather see the business languish in this country than to have it flourish with that kind of impulse.

IT warms one's heart to see a crusade started in the great city of Chicago to save the boys. It costs much less to stop a boy taking the first step in crime and make a good man of him than it does to wait till he is a man and then convict him of murder.

A. I. ROOT asks, p. 81, whether any of the veterans can tell who it was, years ago, that told about a wire-cloth paddle instead of a wooden paddle to knock down an angry bee. Wasn't G. M. Doolittle the guilty party?

A. I. ROOT, p. 83, tells of his "surprise" Christmas present in the way of a bunch of fluffy chicks. I too had a surprise that you'd never guess. In lieu of any other Christmas present, a very dear friend gave me his word that he'd give up entirely the use of tobacco. And I didn't give him a smoker, either.

REPLYING to your question, Mr. Editor, p. 5, I don't know the relative strength of honey and sugar—tried to get a ruling from Washington, but failed. But I've had the idea that a pound of sugar will sweeten more than a pound of honey. I think a syrup of $2\frac{1}{2}$ sugar to 1 water is *about* equal to honey (altho in some respects greatly inferior).

H. SPUEHLER, in *Schweiz. Bztg.*, 24, ventures the guess that foul brood abounds in this country because so much sugar is fed, and that giving an Italian queen help because Italians do not feed sugar. But I doubt whether sugar is fed here as much as in Europe, judging by the pages and pages in German journals occupied with denatured sugar. Then as to Italians, the queens given are not from Italy, but reared in this country, and so are in just as much danger from sugar-feeding as others.

BEER consumed in this country in 1915 amounted to 18.24 gallons per capita. That's the least in 10 years, and 2.3 gallons less than in 1914. It means an average of $\frac{2}{5}$ of a pint for every man, woman, and child for every day in the year. But some of us didn't drink our share. The per capita of spirits was 1.25 gallons, the least in 16 years, and .18 of a gallon less than in

1914. Let us hope that the pendulum will continue to swing in the same direction in 1916.

LATELY I saw the statement that there was no need to have a queen a year old before deciding whether she would be good to breed from, for we could tell before she is three months old what kind of layer she will be. That shows that prolificacy was counted the only thing needed—a view held by many. Such people should read Doolittle, p. 10. I don't see how I can estimate a queen's value until she is more than a year old.

THE United Honey-producers' Association, under the leadership of Geo. W. Williams, is quoted on page 46 as saying that some of the old fossils will "open their eyes when they wake up some of these mornings and see the United Honey-producers doing the things that they have been dreaming and talk, talk, talking about for a quarter of a century." Don't be too hard on the "old fossils," George. Some of them did a good bit more than talk—and, by the way, you're doing some talking yourself—they put up quite a lot of good money. Like enough, they would commend to you the word of Ahab to Benhadad, "Let not him that girdeth on his armor boast himself as he that putteth it off." If you will be our Moses, we'll rejoice; but please don't shy stones at any honest effort of the past, even if it didn't have the same success you will have.

"We consider a good windbreak next to packing," says ye editor, p. 56. I wonder, now—I just wonder—whether that might not be made a little stronger. After studying over it quite a bit, I feel inclined to say that a sufficient windbreak is more important than packing. Set a hive without any packing in a dead calm, with a zero temperature, and another with the best of packing, in the same temperature but with the wind blowing a gale, and I believe the unpacked hive would have the best of it. To be sure, you're not likely to have a windbreak that will make a dead calm, but it's working toward it; and a windbreak of even a few scattered trees makes more difference in the force of the wind than it generally gets credit for. [We felt just as you did; but on thinking it over we thought that, if we came out as strong as you express yourself, the public might think that we were too radical; but if we can have your company, we shall subscribe to all you say.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



I wonder if any of the readers of GLEANINGS have had any success in securing honey from the hairy vetch. It is a good forage-plant, and said to be an excellent honey-plant as well.

"Tickling the Palate of a Nation" is a mighty big job as it seems to me, page 34, Jan. 1. But tickling it with honey is certainly better than with the thousand and one artificial compounds now on the market.

I believe the complaints which E. C. Bird makes of the net-weight law, page 948, Nov. 15, are quite just. It has cost us a great many dollars to grade and stamp our honey this year, without any sufficient advantage to any one to make it pay, so far as I can see.

Dr. Miller asks, page 5, Jan. 1, why ten days is not just as well to cage a queen to cure a hive of European foul brood as two or three weeks. May be in cases where disease has just started; but I would not advise so short a time where the disease has gotten a good start.

Grace Allen is thrilled by the marvelous mechanism of the stomach of a bee. There are more wonders all about us than we dream of in our wildest moments. We can never exhaust them; and so the great loving Father would reveal himself to us thru the things he has made.

Mr. F. R. Bethun informs us, page 994, Dec. 1, that there is in Australia a great demand for honey for army contracts. Slowly but surely honey is being more and more appreciated; and before many years it will come to hold the place in dietetics that belongs to it.

That "Serious Situation in Florida" seems to me serious indeed, page 1009, Dec. 15. The Florida fruit-growers had about all the trouble before they could well stand up under. It was the last straw that broke the camel's back.

It was with pleasure that I read P. C. Chadwick's experience with the mud wasps

(page 925, Nov. 15). These wasps hereabout seem to lay an egg on the base of the cell before filling with spiders. They prefer those same crab-spiders for their young here as in Kansas. But several years ago the supply of this kind failed; but the wasps were equal to the occasion, and filled their cells with other kinds, little and big, and their larvæ did not suffer.

That editorial, "The Economy of Honey as a Food," is just splendid, page 1010, Dec. 15. If we had more such illustrations I believe it would add immensely to the popularity of honey. The facts are that honey at present prices is about one of the cheapest energy-producing foods we have, with the exception, perhaps, of potatoes and the grains, and sugar and molasses.

I fear that the Oklahoma foul-brood law may prove something of a boomerang (page 940, Nov. 15)—it's something to do for an inspector to examine every yard of bees in a state, or for every beekeeper who sells honey, bees, or queens to go before a notary public and swear he has no disease among his bees.

Mr. Lewis L. Winship, page 1022, Dec. 15, relieves his disgust of home-made hives. But a factory-made hive in the hands of an ignoramus of a beekeeper is a sorry affair, not much better. We used to hear a good deal about making hives "fool-proof;" but I came to the conclusion some time ago that fools were poor material out of which to make beekeepers.

The index to the 43d volume of GLEANINGS is one of the best we have ever had. It doubles and trebles the value of back numbers, and gives us an amount of information on almost every subject connected with beekeeping that is surprising. When we compare this volume of over 1000 pages with those in the seventies we can readily see how fast we are moving forward.

"Do Bees Perish during Winter when Their Hives are Completely Covered with Snow for Long Periods of Time?" editorial page 3, Jan. 1. Our experience has been that bees winter at their best out of doors

under such conditions. The facts are, snow is one of the best non-conductors of heat or cold. The hive is wholly protected from the wind, and temperature is quite even. Snow is soon melted around the sides of the hive; and if a colony is fairly strong it comes thru all right.

That article taken from the *Weekly News Letter*, page 1045, Dec. 15, on sweet clover, is of great value to all interested in the growth of this plant. I am surprised how rapidly the interest in this plant is increasing. I remember well when I first sowed alsike-clover seed, probably the first sown in Vermont, forty-nine years ago this coming spring, and I hoped it might help us out when there was little white clover; and now for the last five years it has saved us from ruin. I believe the sowing of sweet clover in meadow and pasture will prove another help in the right direction.

J. H. Lovell tells us, page 1040, Dec. 15, that hawkweed was introduced into this country from Europe some fifteen or twenty years ago. May be he is right; but if so, there must have been an earlier introduction, for it has been growing in this vicinity for more than forty years. But that does not make it respectable. It is a bad weed. It not only sends out a host of tiny winged seeds to cover new territory at a distance, but sends out creeping roots to make new plants near by. I know of no way to get rid of it in rough pasture land but to lime and sow to sweet clover, a good growth of which will smother it and furnish a lot of good feed at the same time. (Oh, yes! I remember now—*salt is said to kill it.*)

There seems to be quite a mix-up of ideas between Dr. Miller and the editor on Grace Allen's question in regard to the amount of sugar syrup to take the place of a given amount of honey for winter stores, Jan. 1. Dr. Miller says, page 3, that $5/7$ of a pound of sugar in syrup will equal a pound of honey. I believe, doctor, you are mistaken. If we add $2/7$ of a pound of water to $5/7$ of a pound of sugar we shall have a syrup that is a little over $28/100$ water, while honey is only $17/100$ water; besides, the bees will consume more or less in storing the syrup in their combs and getting rid of the surplus water. I have found by experiment (weighing) that a colony will not weigh any more two weeks after being fed than the amount of sugar fed them. If fed

thin syrup they will weigh less. Whether a pound of sugar syrup of the same density as honey will go further is another question.

The death of Henri Fabre seems like the loss of a personal friend. He was one of the most fascinating writers of my acquaintance. Every beekeeper surely ought to read of his painstaking experiments. The history of his early life is as interesting as any story well can be. In one of his books he tells how he began making observations as a child. He had discovered the sun in the heavens, and he wanted to know how he could tell this fact, so he shut his eyes and opened his mouth; then he opened his eyes and shut his mouth, and knew for a certainty that he was able to recognize the sun thru his eyes. "How foolish!" we say; but it was thru just such painstaking, careful observations in later life that he gave us a mass of information about insect life that will enrich the world for all time.

On page 928, Nov. 15, E. F. Atwater gives his opinion of eight and ten frame hives and following boards. I wish every manufacturer of hives would read what he says, and take it to heart, particularly in regard to eight-frame hives and division-boards. Let me quote: "As the eight-frame hive has room for eight frames and a thin division (not over $3/8$ thick) *it is seriously faulty. That flimsy worthless follower is one of the worst nuisances ever put into a hive.*" (Italics my own.) He says further: "If propolis is at all plentiful the division-board is often broken when being removed, and sooner or later is left out entirely, and the self-spacing feature of the frames destroyed entirely."

Now, that just hits the whole subject squarely on the head. I just wish those who send out such hives had to open them as the inspector has to in the presence of the owner. I never ask who makes their hives; for if I knew I fear I should never think of them just the same again. In the hands of a large majority of beekeepers they are not a movable-comb hive at all, and they no more think of taking the frames out of their hives than they think of taking their heads off when they go to bed. Perhaps I have said enough; but the suggestion of Mr. Atwater is a good one, that, instead of eight frames and a flimsy following-board, better make all ten frame and use but nine frames and a substantial following-board that can be taken out without tearing it to pieces.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



The fact that the honey crop was very short in the northern part of the state and shorter than usual in Imperial Valley may have a tendency to explain why our honey market is now well cleaned up.

It was pretty well agreed by inspectors at the "state meet" that the symptoms of all kinds of brood diseases converge until it is a very difficult matter, in many instances, to tell just what the disease may be.

Every beekeeper should send to the United States Department of Agriculture for a bulletin known as Separate 637. It gives some valuable hints on organization, and incidentally tells some very pointed things of the rural producer.

Prospects at this date, Jan. 20, may be said to be exceedingly bright for a honey crop. The late rains have soaked the soil to a considerable depth. Honey-plants are in a thriving condition. We must remember, however, that a dry spring would yet reduce our chances for a honey-flow greatly.

The "Golden" came in for a few more knocks at the State Association meeting, and also received some praise. The prevailing opinion is that golden Italians are not a mixture of races that have been blended to produce color alone, but Italians bred to produce color as well as quality.

The heaviest floods for fifty years, if we are to believe the local press, have just passed (Jan. 20), and the damage has been very heavy by washouts and washaways. A Los Angeles paper is authority for the statement that a thousand colonies of bees were washed down one canyon. This is, perhaps, overestimated; but that there were many colonies washed away by high waters there is no doubt. The government record in some localities reached the proportion of 15 inches in three days. The loss of life will figure close to a score.

At the time the World's Fair exhibit was in the hands of Mr. M. H. Mendleson, he estimated that \$20,000 would be needed to make a creditable exhibit. This was frowned upon by the association as visionary, and they lost no time in queering the

work of the exhibit committee. Now comes Prof. Lynch, who had charge of the small exhibit displayed, most of which was made possible by his own means, who says that Mr. Mendleson's estimate was under rather than over estimated. Prof. Lynch also says that Mr. Mendleson was the man of all men in the beekeeping fraternity to place an exhibit in an artistic manner.

At an early hour on the morning of Dec. 30 I was awakened by a snapping and crashing noise, and was trying to decide just what was causing this unusual disturbance, as it did not cease. I had called to my wife to learn if possible what the disturbance was all about. At that moment the telephone rang long and loud. I immediately suggested fire. My wife bounded for the phone, and I to the outer door. Snow! Well, of all the surprises this was the limit. The immense wide-spreading pepper-trees on the street in front of my home were breaking down under the weight of snow. Such a beautiful and rare sight is not often witnessed in this semi-tropical clime. The whole valley was covered with the "beautiful," while to the south the hills where my bee-ranch is located lay under a full foot of snow. It continued to fall thru the day and night at intervals, and, tho melting some all of the time, it reached a depth of five inches in this city. There was imminent danger of the most destructive frost for years on the following night. The sky was clear and all indications at eight o'clock at night were that there would be a rapid decline in temperature, augmented by the carpet of snow. But nature came to our relief, a new storm moved in from the ocean, and all was saved, for the temperature the following morning had run up to 35. I have some beautiful snow pictures which I might submit to the editors for the use of GLEANINGS, but I am timid on these matters. At the time of the great freeze in 1913 I submitted an "ice picture" to GLEANINGS, with an article describing its destruction. I was liberally criticised by California people for even daring to tell the truth. So it is easy to see why I am timid on this matter—not because it was not all so, but because the Californian is looking for tourists and investors; and any words that might keep a dollar from the state are looked upon as criminal utterances, truth or no truth.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



TAKING OFF HONEY IN MIDWINTER.

Yesterday, Jan. 21, our men went to two of our outyards to take off a load of honey. Who would think of doing such a thing in the very midst of winter? Yet we do precisely such a thing, a practice followed for several years, tried out pretty thoroly now, and without finding any ill effects as a consequence. A year ago there was not a month during which we did not take off surplus honey. The same is true of last year's crop, a good deal of which is still on the hives, while some is in storage. Orders are being filled every week, quite large ones sometimes, and we must have a supply of honey to fill them with.

While we found it a good plan to keep our supers of comb honey, just as they come from the hives, in a warm basement specially heated for the purpose, it requires a good deal of extra effort and expense in double handling and fuel. We also found that, with our comparatively mild winters, it does not do any harm, apparently, to the colonies to keep these supers for us until we need them. Of course, every effort is made earlier in the season to prevent too many supers remaining on any one colony. One or two is the usual number that we believe the colony can keep moderately warm from its cluster below, while more than this might result in the honey in the upper ones granulating sooner or later in the winter months.

When the honey supers are removed from the top of the hive on the moderately warm days in our southern winters there seems to result no actual harm to the colony. The bees usually fly on such days—in fact, are often out hustling pollen, and sometimes even nectar from the scattering sources then at hand, and the disturbance is not serious. Indeed, the writer has, upon two occasions, been along to take off some of the uppermost supers during quite cool weather when the inmates were clustered in the brood-chamber below, and seemed not to be disturbed in the least except from the jarring of the hive.

BETTER FOUL-BROOD INSPECTION.

Professor Pattock, State Entomologist, College Station, Texas, in charge of the Texas foul-brood-inspection work, has recently made an extensive trip thru southwest Texas, looking into the foul-brood situation at various points. Prof. Pattock is very enthusiastic about this work for the

beekeepers' interest, and is seeking their earnest support. This should certainly be forthcoming from every beekeeper in Texas.

The question that has arisen among a number of beekeepers that I have come in touch with lately is whether we are really operating under an efficient plan of inspection and eradication work, or whether some better plan might be adopted that would give better results. On account of the great area covered by the state it was found quite difficult indeed to carry out the plan of a single state inspector as in many other states. While this was tried out in the beginning it was soon found advantageous to have a number of deputy inspectors, at least in the greater infected districts. Then the county-inspector system of carrying on the work was adopted, and is the plan under which the work is done at the present time. The county inspectors are recommended by the state entomologist for appointment by the local or county beekeepers' association. The organization of each county where the disease may prevail, and the prompt selection of an inspector, is therefore encouraged. Even counties adjoining those where infestation exists should organize and have a local inspector to guard against any outbreak.

The doubt existing in the minds of a number of well-posted beekeepers is that of a probability of inefficient men finding their way into these positions on account of a certain "pull" or influence they may have in their home county.

Again, it has been asserted that a queen-breeder, supply-dealer, or even an extensive honey-producer, thus using his influence and getting the position as foul-brood inspector, might find it to his interest, on account of the fear that the publicity of the presence of the disease in his locality might hurt his business, to suppress the fact that it does prevail, to the detriment not only of the beekeepers in that county but the industry at large.

In other instances it has been exceedingly difficult to obtain good men for the place because those well qualified could not serve, and the work finally fell upon persons entirely unfit for the position. While there are excellent county inspectors, there have also been some very poor ones; and the question is, "How can we overcome these objections?" From those who are capable of giving proper advice on this subject I should be glad to have suggestions.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



ARE DROUTHS INCREASING?

"I note that you and Dr. Miller have been in the bee and honey business for nearly half a century, so I am led to ask, 'What of the future?' It has been very dry here for the past five years, and

the secretion of nectar has been so poor that the average for those five years has not been one-fourth what it was during the five years preceding, when we had opportune rains and fair skies intermixed. Do you believe the earth is drying up?"

Profit in any productive industry centers quite largely on the cost of production; and if the crop is cut down by excessive drouth to one-fourth of the average, then the outlook would be dubious provided any great extent of the country were to suffer in that way. From my experience I have found that good honey crops come in connection with abundant rainfalls, interspersed with clear skies and high temperature, and that nectar depends on vigorous plant growth, and successful plant life on abundant moisture and heat.

Prior to 1903 we had six years with scanty precipitation, which gave poor honey yields during all of those years, as well as a scanty growth of crops, and the theme of conversation among the farmers about here was that we had cut off our forests, and ditched our land to such an extent that, whenever it rained, instead of the forests and swamps holding the water, the water entered the drains, ran off in the streams to the lakes, and from the lakes to the ocean. Thus we had killed the goose which laid the golden egg. I must confess that such theorizing sounded so good that nearly every one here in central New York believed it, even when the papers told of floods in other parts of the United States.

Up to June 12 of that year there was not an inch of rainfall in these parts. For days the sun rose and set, looking like a ball of fire, even in mid-day, on account of the haze or smoke in the atmosphere. On June 6 I had occasion to go from Syracuse to Buffalo, and saw fires, set from sparks from the railroad trains, running right out in the standing grass in the meadows, the farmers fighting these fires, trying to save the little grass that had grown. When I saw these fires burning down the alsike and white clover's stunted growth, I had anything but an optimistic view of beekeeping for the future.

But at 1:30 A. M., June 12, 1903, I was awakened by a clap of thunder, and soon the water was pouring in torrents on the roof above me. It rained from then on till noon, when the rainfall measured 3½ inches. To make the story short, the rest of the season was more than usually wet; and as the rain came in time for both basswood and the sowing of buckwheat, we got a very fair crop of honey, even after losing everything from clover.

The next four seasons were wetter than usual in these parts, and so all talk about scant rainfall from cutting off the timber and draining the land ceased.

That the drouth, not only in the time of bloom, but perhaps months previous, has played havoc with our honey-yield is, in all probability, true; but there is water enough still, if it had an equal distribution. The cutting-away of the forests and the construction of drains may have something to do with this unequal distribution, but I doubt if any one knows just why drouth comes to a certain locality one season and not the next. Irrigation would be a remedy, but is too expensive to consider for raising honey alone. During the past summer I found that a drouth for a year or two is not always so detrimental to a good honey-yield as I had formerly supposed. Farmers about here seeded their ground as usual with alsike clover during the springs of 1912, '13, '14. During the springs of these years, in this immediate vicinity there was a drouth just at the time this seed should have sprung up, and there was great wondering why there was little or no alsike clover to grow and bloom during the summers of 1913, '14, and hence very little was sown during 1915. We beekeepers about here knew little what was in store for us until about June 15, 1915. At that time fields began to be pink with alsike bloom, and from June 20 to July 15, hundreds and hundreds of acres were just one sheet of pink alsike, so they could be seen in all directions for miles around. This, with a fair yield from basswood, gave us the largest yield of white honey known in this section since 1877. Nature is wonderful in her ways, and capable of holding seed dormant for years; and when a favorable time comes, she starts all these seeds into life. As to the question, "Do you believe the earth is drying up?" I will leave that to Dr. Miller, as he has lived and kept bees many years longer than I.

GENERAL CORRESPONDENCE

SUNDRY APHORISMS

BY J. E. CRANE

On page 992, Dec. 1, Arthur C. Miller gives us some "Sundry Aphorisms." First he tells us not to have any weak colonies, which is very good advice, particularly in autumn. However, in mid-summer it is often a very decided advantage to divide our colonies so some of them will be weak. He next tells us that bees winter well with him on aster honey, but may die on sugar-syrup stores, and gives as the reason, "Worn-out bees. Handling a lot of sugar syrup, or a lot of thin nectar late in the season (late means when clusters are contracting) puts too much labor on the bees, and ages them, and that late, particularly with old queens." Then he calls on Mr. Crane to sit up and "take notice," which I hereby do. Now, I have fed tons and tons of sugar syrup during the past thirty or forty years, and this is the first intimation that it "ages" bees seriously to feed them any winter stores they may lack "when clusters are contracting." I fail to see why it should age bees seriously to carry down five, ten, or twenty pounds of sugar syrup into their combs, which is usually completed in twenty-four hours. "Particularly with old queens;" why should it wear out bees with an old queen sooner than bees with a young queen? Our genial friend informs us that the remedy is to put in young queens about Aug. 20. Why, bless you, my good friend, the rearing of brood is nearly over by Aug. 20 in this "locality," and the young bees reared after that time would be few in number. But I suppose Mr. Miller wanted to draw me out and tell why I had so many weak colonies a year ago. I will tell; but it was not by feeding sugar syrup after the clusters were contracting, by a long way. It was this way: 1914 was a very poor season, and July 25 found my home yard with little surplus or increase, and even the hives nearly bare of honey, but a good supply of bees. I had several hundred dry combs that I wanted protected from wax-worms. I also wanted some increase. So I disregarded the old advice to keep all colonies strong, and made some 75 new colonies by dividing about the first of August, giving my new colonies young queens, and then fed both old and new colonies daily a thin sugar syrup to promote breeding, expecting to build all up

to good strength before cool weather, when they could be given their winter supply; but August proved quite too cool for such work, and I found what I did not know before, that bees will not build up on sugar syrup as well as on honey. However, it proved a financial success, altho I had to go into winter with more weak colonies than I like.

SHALL THE HIVES BE PUT IN THE ORCHARD?

Another aphorism. If you must keep bees among the fruit-growers, do not put your hives in the orchards, but only near them—say "horse-distance off." Now, I confess I don't just know what a "horse distance" is. Is it the distance you can see a horse distinctly, or hear him whinner? or is it the distance it is safe to hitch a horse from a hive of bees? The dictionary throws little light on the subject, so I conclude it is a pretty considerable way off, more or less. But even with this definition I can not quite agree with my friend, and this is why:

While attending the annual meeting of the Vermont Horticultural Society recently I learned of an extensive fruit-grower who, without any regard to the advice of our friend to set bees a "horse distance" away, has actually had the presumption to take hives of bees right into his orchard, scattering them around here and there, one in a place, with the result that in seasons when, during fruit-bloom, it was cold and cloudy, the three or four trees close to a hive of bees were much more fruitful than those further away—a very important consideration, especially as we are apt to have a great deal of such weather in northern New England at this season of the year.

And, again, he says, "If fruit-growers practice spraying while trees or cover crops are in bloom they should know what will happen. No bees will be kept near them, and all the wild bees will be killed off." Not quite so fast, my friend. While we know that spraying at times does kill bees, it also appears to be a fact that at other times it does not. Would it not be well to look into the subject carefully before we condemn *all* spraying of fruit-trees when in bloom?

Middlebury, Vt.

A CONTRACT BETWEEN FRUIT-GROWER AND BEEKEEPER

BY GEORGE H. WEST

Here is my form of contract for placing and keeping bees in an apple-orchard for pollination purposes. I think it may interest many of your readers.

This agreement, made in duplicate, and entered into this 21st day of July, A.D. 1913, by and between George H. West and Wm. H. Bartleson, both of El Paso County, Colorado, *witnesseth*,

That said West is the owner of the SE quarter of the NW quarter of Sec. 32, town 21 south, range 58 west, being 40 acres of land in Crowley County, Colorado, planted mainly to apple orchard, now in bearing, but some 10 acres being in alfalfa, and is desirous of having his fruit-blossoms properly pollinated each year; and that said Bartleson owns some 90 hives of honeybees, and desires to secure a location for them where they may have proper range for pollen and honey:

Now this agreement is hereby entered into by and between the said parties for their mutual benefit *to wit*: Said West agrees to lease to said Bartleson for the term of ten (10) years, unless sooner terminated, as

hereafter stated, a tract of land about 78 feet by 142 feet, located on said 40 acres, and near the southeast corner thereof, for the annual rental of one dollar (\$1.00) per year, where said Bartleson agrees to locate and keep his bees, with the privilege of erecting such buildings as he may require for his uses in said business, with the right to remove his said bees, buildings, and improvement from said tract at the termination of this lease. The number of hives of bees on said tract shall not be restricted, except there must not be at any time less than eighty (80) hives of bees during the blooming period each season. And said Bartleson agrees to the above terms, and is to move all said hives of bees to this specified tract, and is to keep them there during his lease, and to pay said rental annually.

It is further mutually agreed between the parties hereto, that if said West should sell this land, or if said Bartleson should sell all his bees, such action will terminate this lease; otherwise it may be renewed, upon the same terms, upon its expiration.

GEORGE H. WEST,
WM. H. BARTLESON.

PUZZLES; THE CURSE OF GOLDENS

BY ARTHUR C. MILLER

Bees are contrary little cusses, with apologies to Mr. Crane. They persistently prove that what we *know* we know about them isn't so.

On August 8, to a nucleus from which I had a few moments before removed the queen and all brood, I gave a frame of brood of all ages from the egg to six days sealed. That was at 11 A. M. At 4 P. M. on August 10 there were two *sealed* queen-cells on that comb. There were no queen-cells or cups on the comb when it was given. On opening those cells the grubs were found spinning their cocoons, and had them perhaps one-eighth done. Do or do not bees select grubs too old to make good queens?

Perhaps Dr. Miller can tell. To make more clear the foregoing case I will explain that the brood came from a thrifty colony with a fine young queen which had been laying less than a month, and it was given to the nucleus with the bees adhering to it. Why such proceedings on my part? Well, the queen and brood was given to a colony I was making up. And the bees were left on the brood given to the nucleus because it was easier than shaking them off, and also

I was willing to strengthen the nucleus a little, as I was to give it a cell in a few days.

Case 2. Comb of bees and brood with two unsealed queen-cells was given to a nucleus which had a virgin four days old. The queen-cells were completed, four others well under way, and the virgin very much alive, when the matter was discovered three days after the combination had been made. Failure to notice the record was the cause of the combination. What is the explanation?

Case 3. A fair colony with a fine thrifty queen four weeks in it. First two combs, at back, honey; second two, beautiful worker combs almost full of sealed drone brood, a few cells with larvæ, and some with a single egg each. Next comb about half worker and half drone brood all in worker comb. (Just there a veteran inspector said, "Drone-laying queen.") Next comb, a perfect sheet of worker brood with workers emerging. Then he changed his mind. Rest of combs, beautiful worker brood; jolly nice mess that would be for a novice to bump into and try to have explained,

wouldn't it? The new queen had been laying for a week or ten days before the laying workers started in, and they kept to the back part of the hive. (Combs are parallel to entrance.)

Some one will want to know how I treated such a case. I didn't. I just left it to the bees. As the drones hatched, the workers threw them out and the queen occupied the comb. The laying workers die or quit laying after a time, a few are still there, but the colony is booming along; so, why worry?

What is the cause of such a combination? I'll tell you in two words—"Golden Italians." The Golden bees are a curse to the industry. They are no more Italians than an Ethiopian is a Caucasian. The claim that they were developed from Italians by selection is a grievous error. I have seen them from many breeders, and had a great many strains of them myself; but I have never seen one that did not bear the birthmark of the Eastern races—not only the birthmark, but the accursed treacherous temper of the Eastern bees.

Prejudiced, am I? I used to think very well of the Cyprian bee, but I changed my mind. So completely am I weaned from any love for "Golden" bees that not only will I not have them myself, but I am trying to get rid of any trace of "yellow" blood in every yard I inspect. But true pure "leather" Italians are extinct, so far as I can find, so I am taking the best I can get, and am trying to breed out the yellow trace.

Have you noticed the increasing number of reports of cross bees and of the trouble beekeepers are having with outsiders? The trouble has been growing ever since the introduction of the Eastern bees and the cult of the "beautiful yellow queens."

Case 4 will illustrate their bad temper, and a phase of it beyond my ability to explain. An apiary of about 30 colonies of "Golden Italians," wonderfully gentle, good workers and prolific, a desirable strain from a friend of long experience, and se-

lected from a couple of hundred colonies. Six colonies were sold, two each to men who came and picked what they wanted, and the two gentlest colonies were sold to a woman. All were beginners. The original yard was six miles from the nearest lot of the sold bees, and each was about six to eight miles from each other. All queens were clipped. That was in 1909. In 1910 the bees of every single colony of that stock in each of the four yards were uglier than yellow hornets, not at one time, but all the time from spring to fall. The same was true in 1911, even tho some of the queens had been superseded. In 1912 most of the colonies had been requeened with new stock; but wherever any trace of the old blood remained, uncontrollable temper was met with. One of the colonies owned by the woman retained its ugliness thru 1913 and 1914. In August, 1914, I went into that stock and there was the original clipped queen—six years old. It seemed a shame to kill a queen of such long-lived stock and so vigorous, for the combs were full of brood; but the bees were always looking for trouble; and when they couldn't find it they made it. For three years that colony was not touched by me, and I always dreaded it, and always got an awful stinging. And, by the way, some of that queen's bees lived until May of this year.

Will some one explain why gentle stock and gentle bees of individual queens went bad and stayed bad? If it was a case of supersedure and new matings, the answer would be simple; but it was the bees of the original queens all gentle one year, all ugly forever after.

Does some one say bad handling? Well, I handled the original yard and helped on the others, and I am no spring chicken in the bee business.

Bees are contrary—ah! Mr. Crane objects to my saying "little cusses" (a "cuss" equals a "customer"), so I will use an old New England phrase and say that they are "contrary little critters."

Providence, R. I.

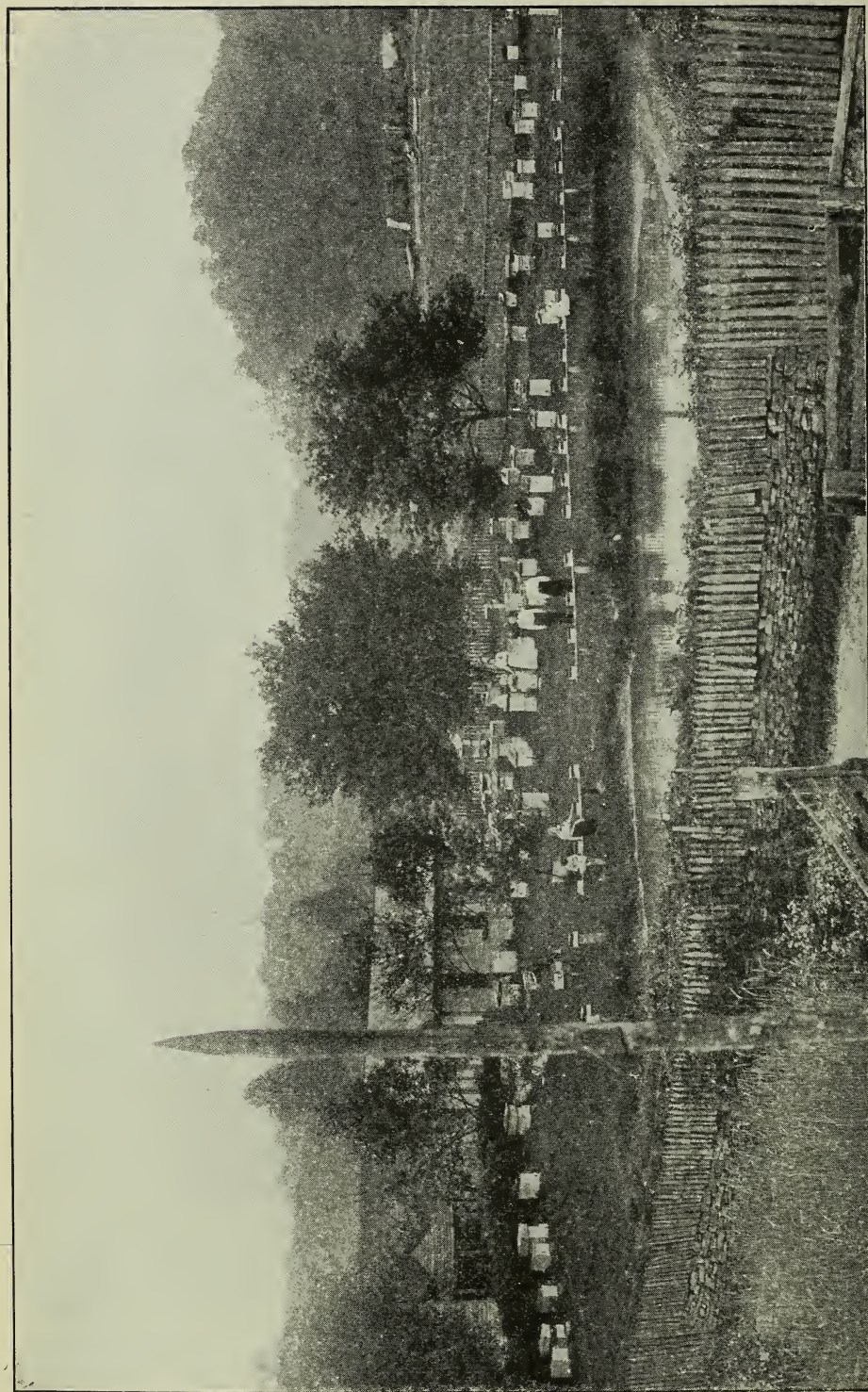
FROM FOUR TO ONE HUNDRED COLONIES

BY CURD WALKER

Seventeen years ago, about one year before I ever saw GLEANINGS, I bought my first bees. They were in a box hive nearly three feet long, and split open on one side. It contained a good colony of black bees, however, and later on that same spring I bought three more colonies, one in a round

gum and two in home-made patent traps in very bad condition. That year I got two swarms, but the moths killed one of them before winter.

The next year I began to get acquainted with Mr. C. H. W. Weber, of Cincinnati, who sent me my first queen-bee of the Ital-



Apiary and queen-rearing yard of Curd Walker, Jellico, Tenn.

ian stock. I lost this one, but soon got another and succeeded with it, then I got started with an outfit of five hives from Mr. J. M. Jenkins, of Wetumpka, Ala., which I got for about \$6.00 for the five eight-frame hives. They never gave me satisfaction. I made a few hives that were worse still, so I tried the Danzenbaker, a few at first, and liked them well for the production of honey, either comb or extracted, as I could use the body and one super for the queen to occupy. But for the last few years I have bought nothing but the ten-frame Langstroth, as it is the Ideal hive for my work in handling frames. I have now 100

colonies of fine Italian bees in up-to date hives with 200 queen nuclei. I did over \$1100 worth of business in 1914, with a clear profit of over \$700.

We have seven girls and two boys in our family. We are all big honey-eaters, and we have not had to have a doctor in fifteen years. We often eat nearly 60 lbs. of honey in a month when we don't have molasses. We can give the best record of health of any family in this part of the country. I used to think I had bad lung trouble, but when I began to follow Terry it disappeared soon.

Jellico, Tenn.

PROOF THAT BEES FLY LONG DISTANCES IN CALIFORNIA

BY P. C. CHADWICK

I have scarcely recovered from my surprise after reading the editorial on page 965, Dec. 1, endorsing the article of Mr. F. M. Baldwin on the distance bees will fly in quest of stores. It is utterly impossible for me to conceive the idea that a perfectly healthy bee would not go five miles for honey if necessary, and even up to ten, on special occasions. If Mr. Baldwin's bees will not go one mile for nectar I am convinced there must be something wrong with his strain of bees. If it were really true that a bee would not go more than a mile and a half for nectar, the bee business in California would be much less profitable than at present, and in many instances could not be maintained on a paying basis. There are so many instances to my personal knowledge where from three to five miles are covered, the idea of only one and a half miles of flight being common seems utterly absurd. I have never thought for a moment that a bee is led by the sight of flora, and cannot yet believe that such is the case.

The editor has knowledge of the location of my Tremont yard, and its distance from the orange-groves, for he has stood on the edge of the canyon and looked far away to the foot-hills where it is located. The distance to the nearest orange-trees is three miles, and it is necessary for the bees to penetrate the groves to some extent to get at the nectar quickly, yet this apiary gathers annually just as much honey from the orange as do those nearly two miles closer.

A few years ago we had a very dry season, wild flora being at a low ebb, and very little chance for a bee to secure a load of nectar from any near source out in the foot-hill region. The apiary of Mr. E. D. Bullock was at that time located down in the "bad lands" district, between San Ti-

mateo and the Moreno Valley, and was a good seven miles from the orange district, yet his bees went to the orange-groves for honey.

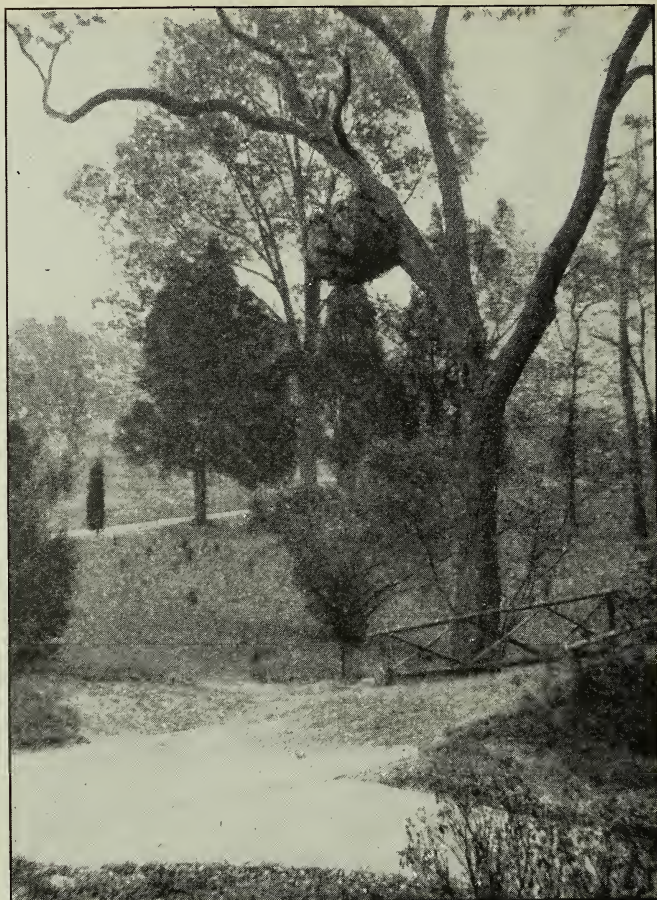
This season at Tustin, Cal., an apiary of Mr. Geo. J. Brown was a distance of five miles from the nearest sage, and that only a fringe, it being seven miles to any sage of consequence, yet some colonies in this yard stored as much as sixty pounds of sage honey. There is absolutely no chance for any mistake in this conclusion—first, for the reason that the honey secured was undoubtedly from the sage; and, second, the fact that there was nothing at that time from which bees could secure honey out in the level valley, which is devoted to the culture of walnuts, oranges, lemons, and beans, none of which were in bloom at that time. In the case of the flight from the apiary of Mr. Bullock there was positively no chance for the bees to see the flora until several miles from their hives.

Some years ago my uncle, J. K. Williamson, had an apiary in Appleby Canyon, which is located several miles from the bluecurl fields near the city of Beaumont; yet morning after morning have I watched his bees line out for the bluecurl fields to the northeast, which is the direction of these fields from their location. This source was figured on as a great asset for the stimulating of breeding late in the fall, and while not a heavy producing source shows that even a light flow will take the bee miles to his work. To those who know Appleby at the point of the location of this apiary it will be plainly apparent that the flora could not be observed before they had traveled a distance of more than a mile, and had made an elevation of several hundred feet up out of this canyon.

The beekeeper of the East does not have the chance to observe the long distances of flight which we have here in the West, and I can look back now upon the misgivings I had years ago about where my bees were securing nectar in quantities, and point to the very source from which they were gathering, altho at that time I did not think it possible for a bee to fly the distance.

Mr. Baldwin sets some very convincing observations before us, all of which seem irrefutable; yet if such is the case with him I would surely try another strain of bees, for I cannot believe the average bee would not go two or three miles almost as quickly as one.

As to the theory of the flight of bees depending on the distance they can see the flora, I have no faith in the idea, but believe the scent of nectar has far more to do with locating of profitable fields than the sight. As a matter of fact, a bee when not loaded can fly several miles at a speed that would make an automobile exceed the speed limit if following her, and to take a little trip across country to search for nectar would hardly be classed as a laborious task. It is a well-known fact that, when one bee finds a source from which a load can be secured quickly, it is soon made known to others of the hive. The line of flight is followed by other colonies as the excitement is increased, until the entire apiary is in a wild rush for the source from which the goods are being secured. I should not be at all surprised if the crossing of the flight of other bees nearer the source has not often led to the directing of the forces of a distant apiary to the new fields. The fact that the distance a bee will fly is generally underestimated is proof that the source



This illustration shows an elm-tree which stands very near Washington's tomb at Mount Vernon. On one of the main limbs of the tree will be noticed a peculiar growth which contained a colony of bees last spring.

IRVING W. DAVIS, New Haven, Ct.

from which honey is gathered is indeed far too often misjudged.

Redlands, Cal.

[In an editorial Dec. 1, p. 965, and elsewhere in our columns for several years back, we have stated that bees as a rule in mountainous or hilly country, especially if the apiary is located on high ground overlooking a big valley, will fly much further than in territory where the ground is level, and more or less thickly wooded. This alone would explain the difference between Mr. Chadwick's observations and those of Mr. Baldwin. But it occurs to us that there are other factors to be considered. When there is absolutely no nectar which the bees can gather less than three and five miles away, it is not an uncommon thing for them to fly that far. But they do not always do

so. There are dozens and dozens of recorded instances of where bees in one yard will be on the verge of starvation when there is good bee-pasturage $1\frac{1}{2}$ miles away.

In Mr. Alexander's location at Delanson, N. Y., the bees flew five miles at times, and, on account of this, it was possible for their owner to maintain 700 colonies all in one location. Buckwheat and goldenrod, which were abundant some falls, would furnish nectar the fore part of the day, and later the bees would clean up the territory within a mile, and then apparently they would keep going further and further in making a clean-up as they went until they would reach out as far as five miles. It would be perfectly natural for them to keep going further and further as long as they could find nectar. We had a very marked case of this at our Hudson apiary two years ago.

There is still another factor to be considered. If bees can gather a liberal supply of honey within $\frac{3}{4}$ of a mile from the home

yard, and that supply keeps up, they will not go further than that. In fact, we know of instances where they would go no further than a thousand feet because there were not bees enough to clean up the range in that distance.

The conditions in and about Mr. Chadwick's home are favorable for long-distance flight, and the same is true at Delanson, N. Y., and other hilly and mountainous parts of the country, and the bees kept on further and further to get a fresh supply. A favorable breeze would carry the aroma of those orange groves right over those bees, and, of course, they would keep on till they found its source.

Whether bees have long-distance vision, probably cannot be definitely proven. Possibly they are governed more by scent, which in the bee is highly developed. If that is the case, favoring winds would have something to do with the length of the flight.—ED.]

HIGHER PRICES AND A BETTER DEMAND FOR HONEY

A Scheme to Raise Money for Advertising

BY WALTER S. POWDER

I seldom contribute to the columns of GLEANINGS, and yet I never pick up a copy without a desire to respond to some of the communications, and occasionally I cannot refrain longer and send in an article. I know that I lack talent and ability; but I can sweep, carry out ashes, and can even cook a steak to perfection. I live in the Hoosier State, where the very atmosphere has brought forth noted writers—right at the home of James Whitecomb Riley—but "Our Jim" is now down in Florida while I am here in the blizzards, and I think that has something to do with my delinquencies. My little contributions have never been snubbed or ignored by the editors; and when I send in an article I look forward to its appearance thinking that I am going to stir up a hornet's nest, and that the contributors higher up will all take off their hats and boost my article! Alas! no one pays any attention to my articles except a very few who write me direct; but none of them have asked me to step out and fight, and I guess I still have something for which to be thankful. I am content to find my name in the annual index.

Well, I have an idea that I believe will interest every beekeeper. Much has been said about boosting honey as to both the price and the demand, and I believe I have

a solution. Two or three things have stimulated my idea lately, one being how citric-fruit growers have created a demand for their goods by advertising, and the pineapple industry is following the same course. Evidently it is a success, otherwise their advertising would not continue. Did you ever watch a garbage-wagon going thru an alley? I did, and what do you think I saw? An awful lot of empty karo-cans, evidently sold by advertising; and just suppose those cans had been empty honey-cans! Would not we be a-flying? It takes money to advertise, and no feasible solution has ever been offered, but I know of one. I would have the National issue stamps, beautifully lithographed in two or more colors, gummed and perforated, and the same size of our postage stamps, or, perhaps, more like our Red Cross stamps. They could be offered by the National and associations, and publishers and supply-dealers would gladly act as agents. They would be used on the backs of letters, and thousands of beekeepers would be glad to use them, even tho they were not members of any association nor even reading a bee publication. They could be sold at any fixed price, say one dollar per hundred, or may be fifty cents per hundred. The money thus brought in could be used by a committee in judi-



David Running's home yard at Fillion, Mich., from which over 10,000 lbs. of honey was harvested last season.

cious advertising. The stamps should be beautifully engraved, and the first thing one thinks of is a clover-head with a bee. Some other flowers would engrave nicer than a clover-head, and the flower need not necessarily be a honey-producer. I would suggest a calla lily, or lily-of-the-valley, and I would have a very little reading-matter—say, for instance, “Eat Honey” at the top of the stamp, and the initials of the National at the bottom. The stamp fad is a fad

everywhere now, especially if the stamp is artistic, and I found a lot of pleasure in using a lot of Red Cross seals, and find that other people are inclined the same way. I have explicit faith in this if tried out, and it would not cost a great deal to try it. We shall not know till we try, like the man who could not distinguish his mushrooms from toadstools. “Eat them; if you live they were mushrooms; but if you die they were toadstools,” said he.

Indianapolis, Ind.

NO SWARMS EXCEPT FROM OCCASIONAL SUPERSEDURE COLONIES

BY DAVID RUNNING

Our home apiary, as shown in the illustrations, gave us last season a surplus of 9972 lbs. besides what we ate and gave away, which would make the total surplus considerably more than 10,000 lbs. We try to see that all colonies are headed with good queens in July or early August. All colonies are fed up for winter between Sept. 20 and Oct. 1, and we make sure that each colony has an abundance of stores to last until fruit-bloom the spring following. I consider this important in this northern locality.

Our bees are all wintered in the cellar, and are put in about Nov. 20, depending somewhat on weather conditions at that time. Our winter loss is usually less than one per cent. We take them out the latter part of March or early April—this, too, depending somewhat on the weather.

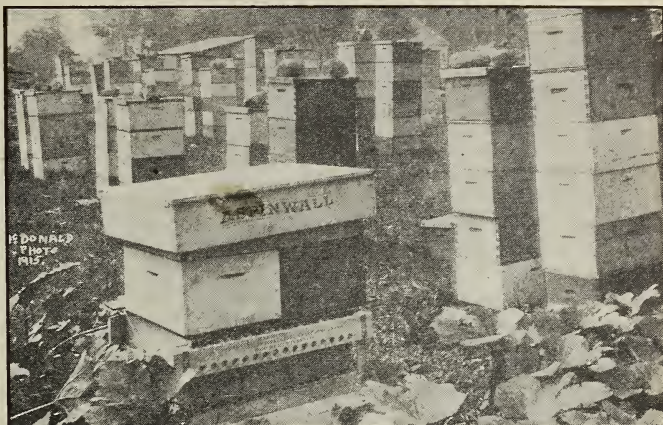
We take the hives out at night and close

all entrances down to about $\frac{3}{8}$ by 3 inches so the bees will fly slowly when the weather warms up. We do not open any hives till fruit-bloom, as we have made sure the fall previous that all colonies have plenty of stores to last until that time, and we do not want covers loosened to allow the heat to escape. During fruit-bloom all queens are clipped, and such other manipulations as are deemed necessary are attended to, such as equalizing stores, etc.

We use the eight-frame hive entirely; and as soon as more room is needed an extra body of drawn combs is given on top without queen-excluder. About a week or ten days later the queen is shaken down into the lower story, a queen-excluder put on, a super of drawn combs is added, and what was formerly the upper story is placed on top again, making the colony three stories high. At this time our clover flow

is usually on. A week later all queen-cells are cut from the upper story; the bees from the brood-nest are now shaken on either foundation or drawn combs (if on foundation one comb is placed in the center to catch pollen and eggs), queen-excluder replaced, and, if needed, another super of empty combs added; upper stories are replaced on top, and what was the brood-nest (eight combs of brood just shaken) is placed on top of the entire hive, making the colony four or five stories high.

If more supers are needed later, they are added just above the queen-excluder, but no further attention is paid to the brood-nest unless they have been marked for queen-ing. Our surplus is entirely from clover; and as we have a stock of about 12,000



The brood-chamber is finally placed above the supers—a part of the plan to prevent swarming.

drawn combs we do not do any extracting until the flow is over, when all honey is taken off with bee-escapes and extracted. We work six yards, and do not have any swarms excepting occasional supersedure colonies.

The one picture showing people standing among bees is a view of this same apiary

taken at a field meeting before all the crowd had arrived. Notice the school in the background; also notice the dandelions in bloom in the yard, and feeders on some colonies. Altho there was an abundance of dandelion bloom last spring, the weather was so cold the bees could not work it.

Filion, Mich.



Mr. Running's apiary, taken just as the crowd was gathering for a field meeting.

FOURTEEN DOLLARS' WORTH OF SUGAR EVERY THREE DAYS, AND RAIN BETWEEN SPELLS

BY S. H. BURTON

The season of 1915 in Southern Indiana was the worst known for several years. I have been keeping bees for seven years; and while this is not long compared to others, still I have never seen a season that was so full of promises and disappointments as the one just past. Bees came out of their winter quarters in fine shape for

the season of 1914, having been a banner honey year with us, so that the hives were full of stores to carry them thru. (These stores were principally aster; but I have never observed any bad effects from bees wintering on aster honey.)

With the opening of spring the bees bred up rapidly; and after fruit-bloom it looked

as if every hive in the yard was full of bees to overflowing, and we were going to have a case of wholesale swarming. Then it began to rain. The bees loafed, and consumed what little stores they had left, and began a hand-to-mouth existence. In two weeks brood-rearing had stopped altogether, and they were in a starving condition. By May 1 it was apparent that we would have to feed to pull the colonies thru till yellow poplar bloomed about June 1.

With the blooming of poplar the bees worked with a vim; but it seemed as if they gathered very little honey, as the continuous rains washed the nectar out or thinned it up so that it was of very little value. After poplar bloomed we then expected the bees to hold their own from white clover, which was just beginning to show on lawns and meadows. The excessive rains brought the blossoms out with a rush, and the bee-keeper again smiled with the anticipation of a white-honey harvest. But tho the bees worked vigorously on the blossoms I guess they did so from force of habit, or to keep from getting the blues, as no honey could be found in the hives.

By July 1 the colonies began to dwindle rapidly; and in place of spring dwindling we had a genuine case of *summer dwindling*. Ever hear of that before? July 4 was spent at the various outyards examining colonies and deciding what was best to do under the circumstances. The cornfields were full of heartsease and bluevine, our mainstay last year at this time, and we thought conditions would surely get better soon. We made several trips to the bottom cornfields to see if we could discover any bees working on the blossoms, but failed to find a single bee, and came to the conclusion that all colonies, even the wild bees in the woods, were in as bad shape as ours. We waited a week longer, and then took a look. The bees were too weak to fly, and were clustered outside of the hives in great bunches, as if preparing to swarm. We brushed them off by the handful. They barely had strength enough to crawl. We rushed to town, and throwing a couple of 100-lb. bags of sugar in the back seat of the auto we stopped at the home yard long enough to load up what feeders were in stock, grabbed a huge granite pitcher, a



A progressive orchardist makes sure of perfect pollination. In case the weather is cold during the blossoming period it pays, and pays big, to have the colonies distributed about the orchard, especially if it is a large one. The cover picture shows a corner of this same orchard.

couple of large milk-buckets, and we were on the road to "rescue the perishing." It was apparent that the feeders would not work, or the bees, rather, as they were too weak to crawl to the feeders. What was to be done with these starving creatures in the middle of the summer, with the temperature around 60 F. to save them? We poured the syrup on the empty combs, and shook the bees on to them. This scheme worked fine, and the bees began to take up the syrup rapidly. We filled every comb in every hive, closed up the hives, and went on our way, rejoicing that we had saved our pets from starvation.

Three days later we again examined the hives, and not a drop of syrup was to be seen. This looked expensive. Could we afford it? Fourteen dollars' worth of sugar every three days, and rain between spells! We figured that every cloud has a silver lining; and if we could save the bees they surely would repay us next year. As the San Jose scale is said to be a blessing in disguise to fruit-growers, so this bee-famine is probably a blessing to the up-to-date beekeeper in that it eliminates the box hive and cleans up a lot of foul brood and weak colonies that were a menace to the beekeeping fraternity.

Fall came, and with it an early frost which ruined the prospect for a flow from goldenrod and aster. Feed we would, and feed we must, even if it cost us \$5.00 per colony. This would be cheap for good strong colonies next spring. We began a systematic gathering-in to the home yard of every colony scattered throughout our numerous outyards for the convenience of preparing them for winter. Weak colonies were given special attention; and if large enough to fill a quart measure they were

not united; but every comb was filled with extracted honey or good thick sugar syrup; and they were packed away snugly for winter. I do not believe it pays to unite weak colonies in the fall, as it is but a short time till the colony united is no larger or stronger than it was before you added the other colony to it.

The law of the survival of the fittest was amply exemplified during the past season. A few colonies seemed determined to live and sting, and gather *some* stores in spite of adversity. Occasionally in our examinations we would find a colony with its accustomed vigor and a slight amount of stores, and even some brood when things seemed to be going backward rapidly in most of the hives. Most assuredly these colonies were marked, and in the future we shall breed from them in preference to the colonies that were too weak to take the feed offered it. We have also learned that the goldens are absolutely worthless in a season like the past; and we pinched the head of every golden in our yards when we were feeding and preparing for winter. We have learned that a cross between the Italian and gray Caucasian makes a hustler worth trying to. We divided a colony of Caucasians early in June, putting in some brood from the parent hive with a few combs of Italian for a start. This hive was placed in an all-Italian yard where the virgin would be sure to cross with an Italian drone. This hybrid queen bred up very rapidly, and at the close this colony had more stores and bees than any other colony in the yard.

We have a storehouse full of empty sections, plenty of foundation, supers, and empty hives, eating southern extracted honey, and have abundant hopes for the future.

Washington, Ind.

COMBS OF HONEY IN A PACKED SUPER

BY L. S. EDISON

In the illustration on next page a novel and effectual scheme for wintering is pictured. It is adapted to double-walled or single-walled hives where a telescope cover is used. A regular super for five-inch-high sections is best.

The inner boxes or trays are made of thin boards from orange-boxes with $\frac{3}{8}$ -inch ends, and filled with ground cork. They fit flush with the top of the super. Between

them will be seen two section-holders and two shallow frames. They contain unfinished sections and combs of honey which insure the colony plenty of stores and room for the first light flow from flowers and fruit bloom. In the eight-frame super the space admits only one section-holder and two frames.

Over this is placed a super cover with screen tacked on the escape space, and then

half a dozen thicknesses of burlap as wide as the super, and long enough to reach well over the ends. This makes a cheap and very warm as well as ventilated winter case.

It takes care of the unsalable honey, and gives the bees No. 1 stores. Their natural home in the rotten, lined, hollow tree could serve them no better.

Des Moines, Ia.

SOME NEW EXPERIENCES IN BEEKEEPING

BY GARDNER B. WILLIS

Two years ago I had a colony that had two queens in October. I saw both at the same time, and all was quiet and peaceful in the hive. I left the bees alone for them to choose the queen they wished to keep.

MOTH LARVÆ.

Last summer, in a nucleus I observed some young bees still in the cells, and alive after their heads had come thru. The next day they were still there. I took a tooth-

pick and removed one, when, to my surprise, a small white worm came from its abdomen. About eighteen were like this, either a small white worm about half an inch long in the abdomen, or in the bottom of the cell. I removed all the bees in the cells that were like this, and have seen nothing like it since.*

DRONES IN WINTER.

I have a hive in my back yard that has at least 75 drones in it. One warm day early in December I observed drones going and coming from this hive. My first thought was that the hive was queenless. I unpacked it and looked it all thru, but there was the queen with one wing that I clipped last summer. I know the colony is all right, altho it has all these drones.

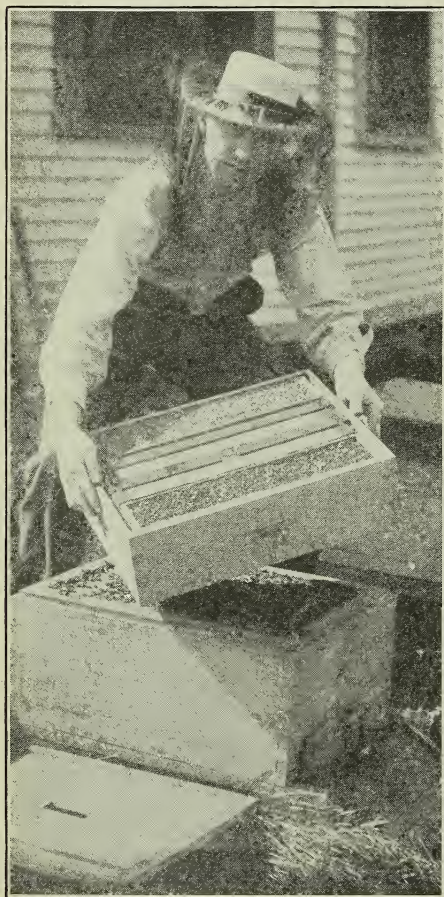
The only way I can account for this, and yet I don't see how it can mean anything, is that I took these frames and bees from a fourteen-frame hive used for queen-rearing, and this was done before the frost came. There has been no excluder or separator in the hive since the change was made. But there were the drones and the queen, and a good strong colony of bees with plenty of stores.

SMOKE METHOD OF INTRODUCING.

Much has been written about introducing queens. The smoke method has been hit often and hard; but from my experience it has seldom if ever failed. I starve the queen for half an hour, and then introduce by the method advocated by Arthur C. Miller.

One day last summer I found a black queen in one of my queen-rearing hives in the backyard. The bees had balled her; and when I came to the rescue, there she was, a black queen. Where she came from I did not know. On the other side of the division zinc was the queen that belonged to the hive.

Another experience I must mention. I introduced a queen; and, looking at the nucleus two days later from which she was taken, there she was, where she was before, and laying. The hive to which she had



Unfinished sections for extra winter stores in a packed super.

* We have seen the same thing. Probably not the wax worm, but the larvæ of some fly.—ED.



A branch of a Northern Spy apple-tree covered with mosquito-bar during the blossoming period to keep the bees away. There were 876 blossoms on this one branch. The rest of the tree bore a normal crop. There were just five apples on this branch, and three of these dropped before becoming ripe. The bees are necessary for pollination of the blossoms.

been introduced was opened soon after, and no queen could be found. It is reasonable to suppose that she came out, or was dragged out, and found her way back to her nucleus.

There is a man out in the country who has several box hives of blacks. He sells prime swarms to me for 50 cents apiece.

I furnish hives and frames. He hives them. He is well satisfied, and so am I. The blacks are requeened with Italians. He says there is more money selling prime swarms than raising honey. He says the box hives are good enough for him, and less trouble.

Providence, R. I.

AS GLIMPSED THRU THE CAMERA

Some Common and Uncommon Sightings Among the Bees

BY H. H. ROOT

The experiment of covering a branch of a fruit-tree with mosquito-bar while it is in blossom in order to show the loss in fruit by keeping bees and other insects away during the blossoming period is not new. Experiment stations and individuals have before proved the value of the bees in this way. A couple of years ago a similar experiment (?) was tried with rather astounding results. One of the suburban magazines under "Practical Hints" gravely published an illustrated article from a contributor who said that he had found that draping his young fruit-trees with mosquito-bar during blossoming-time kept the bugs from *biting the blossoms* and otherwise destroying them! This writer was evidently so blinded by the anticipated vision of the al-

mighty dollar or two that he would receive for his contribution that he did not notice that what he wrote was fiction rather than fact. We wrote the publishers a letter of explanation, and they published our letter in full without comment, no doubt being too full for utterance. The picture which they had printed was very much like the one shown herewith except that the tree was smaller, and all of it was tied up with the mosquito-bar.

Last spring, simply for our own satisfaction, we covered one of the branches of a Northern Spy apple-tree with a bee-tent, tying strings closely around the branch so as to make a sort of bag, enclosing the whole branch. This was just before the blossoms had fully opened. Just before tying on the

mosquito-bar we counted the blossoms on the limb and found that there were just 876.

The branch was left covered until all of the blossoms had fallen. All the other branches on the tree, as might be expected in case of a Northern Spy tree, bore a good crop. When we removed the mosquito-bar we counted the apples on this one branch, but it did not take as long as it did to count the blossoms, for there were just five. Later on, three of these fell off before they became ripe. From the 876 blossoms, therefore, we secured but two good apples.

The wind plays a part in distributing the pollen and fertilizing the blossoms, and no doubt the circulation of air within the bag was not quite as brisk as that outside, and yet grains of pollen are almost microscopic in size; and if the wind had a very important part in the pollenization of blossoms it surely seems more than five of these should have set fruit, for the open-mesh mosquito-bar would not amount to much of an obstruction to the passage of the pollen, espe-

cially since the tree in question was on the southwest corner of the orchard, and the covered branch on the south side of the tree.

It seems to us that no one should question the value of bees and other insects in pollenizing fruit-blossoms. Since there are usually ten or more bees to one other kind of insect, may we not claim that the bees are largely responsible for the distribution of the pollen?

If there are enough bees in the locality, each orchard need not necessarily have bees; and yet, if the weather happens to be cold during the blossoming period, the bees will not go as far from their hive as usual, and consequently the pollenization is not complete by any means. The largest fruit-growers are well aware of this, as evidenced by the determined effort on their part to get the bees. No beekeeper need pay rent for a location if there are progressive orchardists in his vicinity who know the value of the bees.

WINTERING OVER EMPTY COMBS

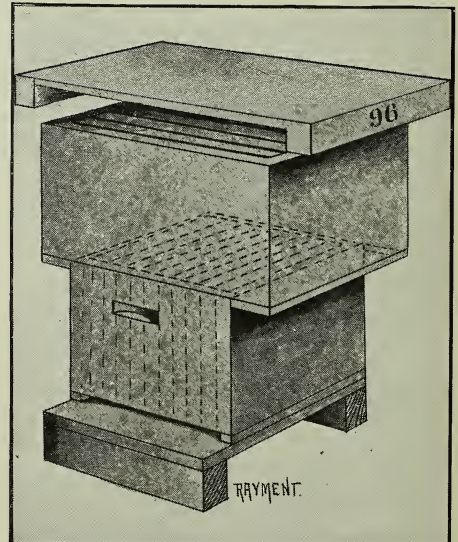
BY T. RAYMENT

This practice is not at all uncommon in Australia, where some of the largest honey-producers consider that the proper place for combs at all times of the year is on the hives. Of course, one is constrained to admit that the rigorous winters of the northern states of America are not encountered in the great sunny commonwealth, tho the climatic changes experienced in Australia are probably just as detrimental to life—that of insects in particular. The thin-blooded creatures of the tropics painfully endure a degree of cold that would be quite unnoticed by the inhabitants of the colder zones.

In those seasons when a severe winter threatens, it is no great stunt to forecast such a contingency in North Gippsland, Victoria. It is better to remove all surplus honeycombs from the hive. This procedure is not primarily to reduce the size of the hive, but to obviate any subsequent food trouble due to the honey absorbing excessive moisture from the atmosphere. Generally, however, it is quite safe to place a body of *empty* combs under a well-stored brood-nest.

The writer has in mind a certain autumn when the wax-moths were exceptionally troublesome; and to minimize labor two supers of dry combs were placed under each brood-nest, without any apparent det-

rimment to the welfare of the bees. To illustrate the conditions that exist in hives so treated, let us take, for analogy, an ordinary living-room. As the temperature outside drops down with the advance of evening, if we successively rise to higher levels



Super larger than the brood-chamber, and with combs crosswise of those below.

inside the room we should be able to maintain an equable warmth without much difficulty, since the warmest portion of the room is next to the ceiling.

Empty combs under the brood-nest may be left for winter in sunny Australia with perfect impunity. That the same scheme will be uniformly successful in the United States with a greater diversity of weather is debatable. In a recent issue of the *American Bee Journal* I dealt with the eight-frame hive and empty combs from a standpoint not altogether disassociated from the above subject. In the same issue Samuel Cox states, "It is almost impossible to do successful beekeeping with eight-frame hives." Gosh! Samuel, you're an intrepid man to father such a sweeping statement. Your humble servant harvested an average of 360 pounds of extracted honey per eight-frame hive in 1912 in an apiary of 150 colonies. Now I want to ask you, Mr. Editor, how much, over and above that amount, would ten-frames have yielded? But perhaps you had better look up the *American*

Bee Journal to absorb my ideas of what constitutes an eight-frame hive. No, Mr. Cox, a man who can make a success of apiculture with ten frames can repeat the trick with eight, twelve, or fourteen, divisible or reversible, Long Idea, or any other pattern.

However, I appear to have got on to a side line. What I wanted to do was to direct attention to the method of amalgamating, if it is permissible so to describe it—two sizes of bodies into one whole. Mr. E. Garrett, one of the pioneer apiarists of Australia, and a neighbor of mine, uses a super considerably larger than the brood-chamber. In the drawing I have endeavored to illustrate his method of adaptation, which may be used with any odd-sized bodies. It will be noticed that the scheme permits the combs of the super to cross those of the brood-nest at right angles, which is quite a desideratum. The "overhang" of the super is closed underneath by two slats, $3 \times 20 \times \frac{1}{2}$ inch.

Briagalong, Victoria, Australia.

BEE CULTURE IN LOUISIANA; SOME OF THE HONEY SOURCES

BY J. F. ARCHDEKIN

The honey-flow in this section is divided into three distinct periods. These overlap or merge into each other, so that there is no stop in the flow after it begins in the spring. The bees always have some flowers available to work on. In the following I will mention only the main honey sources, and make no mention of many others.

The spring crop is secured from willow, tupelo, and white clover. Willow is a good yielder, and the bees gather a considerable amount of nectar from it. Where I came from (Missouri) willow yielded only pollen so far as I could see, and I was, therefore, surprised at the amount of honey stored from it here. Tupelo opens a day or two after willow, and a little later white clover comes on. Tupelo is the main source, however, as it is more abundant than the other two. The honey is classed as tupelo, and is white in color, heavy in body, and of fine flavor. It is hard to find words to describe the intensity of this flow. It comes in a veritable flood, and the bees work with might and main. They start out at the first streak of dawn and remain afield until long after sunset. The flow is of short duration, and they seem to realize that the time in which to fill their hives is limited.

The summer flow begins at the close of the tupelo, and continues in a long slow flow all summer. This is gathered from numerous flowers, only a few of which I can name. It is sufficient to say that practically all the honey-plants common to the central states are found here in addition to a world of others. There is a profusion of bloom all thru the season. Cotton is the main field crop, but I have never seen a bee on a cotton-blossom. It is very strange, too, as I understand it is a good source in most sections. This summer honey is red in color, and of very poor quality. The flavor is rank, with a distinctly sour twang. Strange to say, this honey fermented in the comb both before and after it was sealed. As it was stored very slowly I don't understand what caused it to sour, especially in view of the fact that the weather was dry all summer.

Goldenrod, horsemint, and boneset are the mainstays of the fall flow, which is in full swing by September 10. Asters and smartweed are also abundant. This flow is as heavy as the spring flow, and a good crop is secured besides putting the colonies in shape for winter. It lasts about a month. This fall honey is a light amber, of good

body and excellent flavor. It is a most excellent table honey. After the close of the fall flow the bees continue to gather pollen all winter on days when it is warm enough to fly. Bordonville, La.

THE ADVANCEMENT OF APICULTURE IN GREECE

BY H. H. ROOT



John G. Poppageorge, of Athens, Greece, who is going to introduce American methods of beekeeping into his own country.

During the course of a year many visitors find their way to the Home of the Honeybees, some of them from countries far distant. During this last season we had visitors from at least four different foreign countries. One of these, Mr. Herbert J. Rumsey, of Dundass, New South Wales, Australia, contributed the beautiful picture shown on our cover of the Nov. 15th issue as mentioned editorially.

Another visitor, also a very interesting one, was Mr. John G. Poppageorge, from Athens, Greece. Mr. Poppageorge has spent some time in the United States, is thoroughly familiar with American ways and speaks English most fluently. On his trip to this country last summer he was twice arrested and held on suspicion of being a spy, but was finally able to prove his innocence by the papers he had in his possession. On reaching this country he spent some time visiting some of the larger honey-producers and he expects ultimately to go back to his own country and to interest his government in promoting an apicultural department.

On the day that Mr. Poppageorge reached Medina it so happened that quite a large number of summer-school students from Wooster, Ohio, came up to study bees for a few hours. Our friend from Greece was an interested onlooker. The illustration below shows the group in our apiary with Mr. Poppageorge helping to demonstrate bees to those less familiar with them and their habits.



Summer-school students from Wooster University having a field meeting of their own at the "Home of the Honeybees."

EUROPEAN AND AMERICAN FOUL BROOD

Their Differences, History, and Methods of Treatment

BY OREL L. HERSHISER

Continued from page 57, Jan. 15.

Some of the conditions under which European foul brood will abate or disappear of itself are now known to be, 1, a vigorous, prolific queen; 2, a strong colony of resistant bees; 3, a good and prolonged honey-flow like that from white clover or buckwheat. In a good honey-flow the larvæ are fed on nectar and pollen fresh from the flowers, and uncontaminated with infection, and a constantly and rapidly increasing number of them will reach maturity in health.

When these conditions obtain, European foul brood may be treated as follows with even much less loss of time of our queens than by any of the methods described in the preceding articles.

Given a colony of normal strength, mildly diseased. Remove from the hive all brood-combs except the one having the most sealed brood and the fewest diseased larvæ. Place this comb next to one of the side walls of the hive. Brush the bees into the hive, being sure the queen is there also. Next to the comb of brood place a frame of foundation; and if it is an exceptionally strong colony, use two of them, and fill up the remaining room in the hive with drawn comb, either old or new. In fact, all the hive may be filled with foundation except the single frame of brood, except that it is often more economical to use the combs we already have.

The object is to discourage the queen from laying for a day or two while the foundation next to the frame of brood is being drawn out. There are but few cells in the comb of brood, where the queen will naturally commence to lay, where in to deposit eggs. This colony has been made abnormally strong compared with the amount of unsealed brood. It can easily clean out the few diseased larvæ, and all new larvæ being fed with uncontaminated nectar and pollen will be able to keep the diseased larvæ cleaned out from this time on, and a cure will usually result. If the queen skips over and lays in the drawn comb before the foundation is drawn out, a cure will also usually result. This circumstance indicates an unusually strong colony that is the better able to resist the disease.

In this treatment the queen is retarded—not stopped—in laying for only a day or two, and the loss in the production of bees for the honey-flow that may follow is re-

duced to the minimum. Also there will be no "swarming out" as so often occurs where the shaking or brushing treatment is employed unless troublesome pains are taken to prevent it. We have cured the colony by simply aiding the bees in doing that which they could almost accomplish without aid.

If the colony is badly diseased, but strong, remove all combs and substitute one of mostly sealed brood containing little or no disease and complete the treatment as above described. In a strong colony, not badly diseased, this treatment may be varied by placing the bees and queen on clean combs, or part combs and part foundation, in the lower story and the brood above, and separated from the queen by an excluder.

To produce the maximum crop of honey we need to keep the queen depositing eggs as rapidly as possible in anticipation of the harvest. The great value of this method of treatment, therefore, clearly appears.

WHAT TO DO WITH THE DISEASED BROOD.

Some have stacked it up over another diseased colony for the healthy brood to mature, keeping the queen confined to her brood-chamber by an excluder. This, the writer considers, is bad practice, for the reason that, after the healthy brood has matured above the excluder, there usually would still remain the diseased brood in the chamber below to treat, thus carrying the disease along. In exceptional cases this colony, during a good honey-flow, if of resistant stock, might cure itself because of its having been made abnormally strong. A better way, however, is to take a nucleus consisting of the queen and two or three frames of brood and bees from a strong healthy colony, and this because such a colony is probably highly resistant. Shake the bees from the remaining frames of brood into their own hive and divide this brood among the healthy colonies. Here we have a goodly queenless colony to which may be given the diseased brood, and which may be stacked up four or five stories high if we are careful to leave sufficient bees on each comb to care for it. Make as many such hospital colonies, if we may so call them, as may be necessary to use up all the diseased brood that may be found in the apiary. On the ninth day after so collecting the brood, go thru these colonies and de-

stroy all queen-cells, and at the same time give a ripe queen-cell, or introduce a virgin queen from the best available Italian breeding stock, keeping her confined to the lower story by an excluder. This will usually result in a fine colony, free from disease, no loss of combs, and, if favored with a good honey-flow, a good crop of clean honey.

It is apparent that this method disposes of all the infection to be found in the apiary at the first treatment, which is very important, and it is also economical of time. It also gives us the best use of all our bees, and these strong hospital colonies will store honey in a manner not excelled by the best of the other colonies.

THE VALUE OF RESISTANT STOCK.

It is a well-established fact that certain vigorous strains of Italian bees are the most resistant to European foul brood, and yield more readily to treatment of the disease, than other strains. And it is not too much to say that good resistant Italian stock contributes more to successful treatment than any other single factor. The first step, therefore, that should be taken for its prevention or treatment is to requeen with a resistant strain of Italian bees, if they are not already of that race. It is seldom that the native black bees or their hybrids will successfully resist the disease or attain a permanent cure. With resistant Italian bees the problem is comparatively easy.

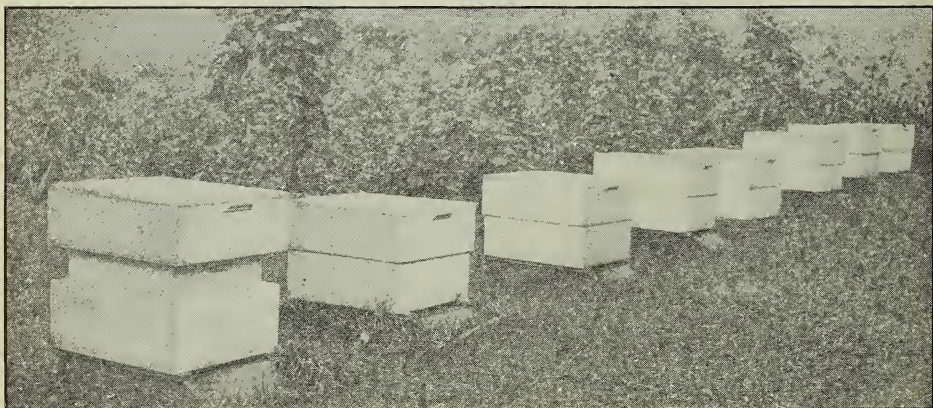
When inspecting and treating the first of my apiaries to be attacked by European foul brood I noticed that three or four unusually strong and otherwise excellent colonies of Italian stock never showed any

trace of the disease. The queen of the best of these was used as a breeder; and every hive in the apiary, except these three or four, was requeened with queens reared from this breeder. The next season all the queens of the previous season's breeding were removed, and requeening was done with queens reared from the same breeder. A part of the apiary was requeened in the same manner the third season, and would have all been so requeened had not the breeder been suddenly superseded. The object of this line breeding was to fix the resistant qualities so that in future breeding there would be a fairly good prospect of their being transmitted and a strain of Italian bees established that could be depended upon to put up a good resistance to the disease.

Subsequent results proved the wisdom of breeding with European-foul-brood resistance as the object sought. Resistance is not obtained at the expense of other desirable qualities, as it apparently goes hand in hand with vigor, good wintering, and good honey-gathering characteristics. This particular breeder was doing service for the third year when she was superseded, and possibly for a year or two before I had occasion to select her, which adds the further quality of vitality to the stock selected.

Kenmore, N. Y.

[This is the third of a series of four articles by Mr. Hershiser on the history and treatment of foul brood. In the fourth and last article, which will appear in the March 15th issue, he will complete and summarize his discussion of methods of treatment.—Ed.]



"Backlot Buzzer" apiary, owned by Dr. C. Elton Blanchard, Youngstown, Ohio. Six of the colonies were made from two-pound packages of bees. Each was put on empty combs and foundation, with a queen about May 1. The doctor considers his hobby a paying one, as a good crop of comb honey was secured.

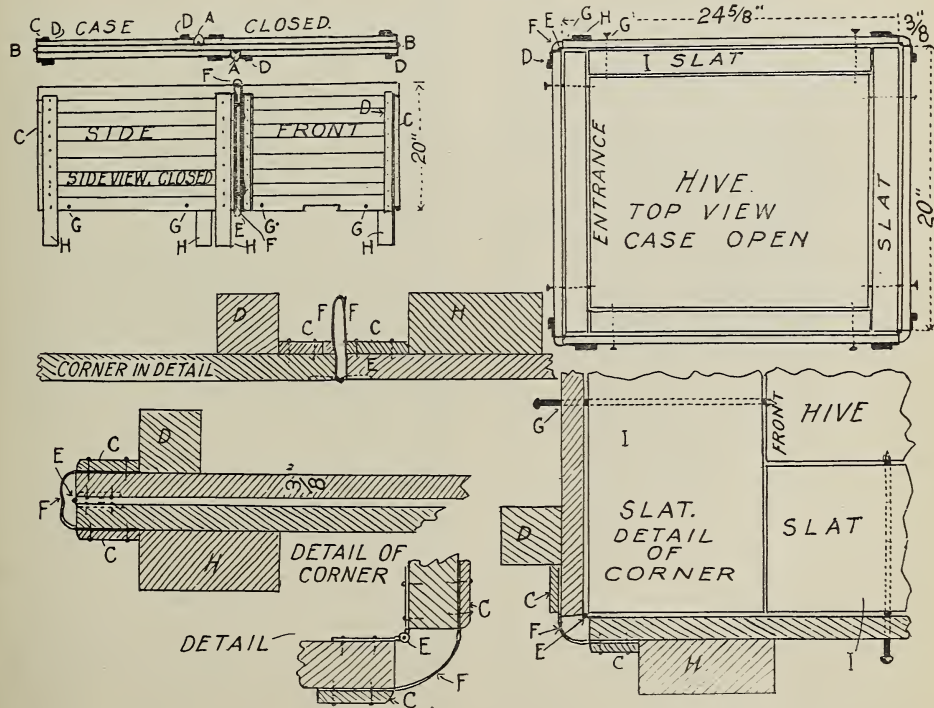
A COLLAPSIBLE SINGLE-COLONY WINTER CASE

BY J. H. FISBECK

The illustration shows a plan of a winter case which is collapsible, quickly applied, can be made so as to fit different-sized hives, and, when applied, one can examine frames of bees by only removing the cushion. The case may be removed without taking it apart, is very neat, and absolutely water-proof. While the plans specify $\frac{3}{8}$ -inch lumber and $2 \times 2\frac{1}{2}$ -inch space for side packing, which is sufficient here, these measurements can be changed to suit climate.

The special features that characterize the case are, the rapidity in which it can be put on and removed from the hive, and the

and clean method of removing the side packing in the spring, especially for one having bees on a nice lawn. It is this also that makes a nice fit to a hive on uneven ground, and the possibility of applying it to an odd-sized hive, *i. e.*, driving a long thin finishing-nail with one light tap thru the holes in the case into the hive. Have the nails long enough so as to be able to adjust the case to fit the slats after the nails are driven in. Next place these removable slats on the nails, which should be level. Pour in shavings till they reach the top of the hive. Shavings above the hive should be in the form of a cushion to



small amount of room it takes to store away in summer. The case only needs to be unfolded to be in readiness for the hive; but it is advisable to use hinges with loose pins, especially the last pair put on, as it is much easier to work when making it. The oilcloth at the corners keeps the packing dry, and prevents the hinges from rusting. The inside of the case is free from cleats, etc., making it a simple matter to pour in shavings and also to remove them from below.

Another valuable feature is the simple

permit examination of the bees in the spring. One can have the top of the cushion open if he desires to empty them of shavings in the spring. To remove shavings from the sides of the hive, jerk out the nails and bottom slat, and shavings will fall on a cloth on the ground.

I tack tar paper over the boards on the outside, between the legs or cleats, with tins and tacks. The cover is made of $\frac{3}{8}$ -inch boards cleated around the edge and covered with a sheet of rubberoid.

St. Louis, Mo.

CAPPING AND COMB-MELTERS UP TO DATE

BY H. BARTLETT-MILLER

For large yards capping-melters have undoubtedly come to stay. Up to now the ultimate design has been undecided, obviously, because too many are designing by experience alone instead of experience and theory. True, experience has shown us a few of the essentials regarding the labor side of their construction; but the effective side, both as to the capacity of the machines and the effect upon the honey, are matters which, tho fully recognized as not fully satisfactory, are (or were) largely unsettled.

The designing, making, testing, and the discarding of honey-melters of various and successive designs, has, for nine years past, been a hobby with me. Root's double-walled can melter, with the screens, was too readily blocked up, and the honey on the flat bottom was too long detained in contact with the heat. No successful capping-melter can have any flat surface. Lots of others have this grave fault.

The next obstacle is a multiplication of small tubes. This was the objection laid by the editor of GLEANINGS against Mr. Beuhne's melter, viz., that continued expansion and contraction would cause the tubes to leak at their joints. Let me add that I want a melter that the ordinary beekeeper can make with his own soldering-iron; and altho he may manage a few big tubes he cannot and will not fuss around with small tubes, such as Severin's $1\frac{1}{4}$ -inch square tubes are; and if the bee-supply firms should turn them out they would be very expensive, and also unnecessary. Melters with a wide flat bottom are also out of the race for perfection, as the iron surface buckles; and while the wax and honey flow to the gutter all right, they flow in a few defined streams according to the amount of buckling of the metal, and the rest of such buckled surface is wasting heat only to annoy the operator. The one I illustrated a few years ago also was faulty, because it had to be cleaned out at the bottom of the gutters about every four hours. I want a melter that will go on like the sands of time if need be.

The greatest fault I have to find with the most promising of the melters so far illustrated is the lack of melting surface for the amount of fuel used. Another serious fault is that all of them have places at which the flow of honey to the exit is delayed for a longer or shorter space of time. The ideal melter must allow the wax and honey without the slumgum to flow uninterruptedly

and swiftly away from the heat which melted it; and furthermore—and this is important—the whole weight of the wax and honey should be used to press the contents of the melter on to as large a surface as is possible to be made available; therefore no inside-heated surface should be upright.

And now let us see. We will take Severin's melter described on page 724, 1911. This has been much lauded, both in New Zealand and in the United States. Mr. Severin has sent out a description of another melter since then which he thinks (I don't) is a great improvement on his 1911 melter. That melter had eleven tubes $1\frac{1}{4}$ inches square and $16\frac{1}{2}$ inches long. Thus the actual melting surface was $2\frac{1}{2} \times 11 \times 16\frac{1}{2}$ inches, or a total of 454 square inches—far too little surface for the capacity of a melter $18\frac{1}{4}$ inches long and $16\frac{1}{2}$ wide and 8 deep. Then it had the fatal fault that all the wax and honey which passed the tubes fell on a flat surface; and everybody who has used a melter knows that the oxidizing of slumgum in contact with heat, such as the slumgum which stuck to the under surface below the tubes must have met with, is the cause of the darkening of the honey. Such a melter ought to have been scraped continually down beneath the tubes—an impossible job when extracting. Then the fact that the slumgum is not quickly removed from both wax and honey is in itself a damning fact in any melter.

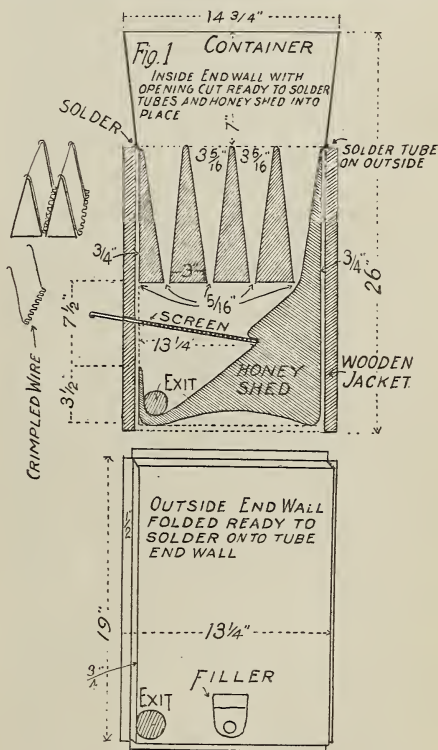
Now criticising (as I hope all will criticise mine) Mr. Severin's new melter described on p. 15, 1915, the fact of its having those 221 (whewation!) tubes in it, puts it out of court at once; for the man who requires an inexpensive affair, and having only half-inch tubes precludes its being a great success in melting constantly old brood-combs. True, melters were originally made for cappings; but when we want to get honey out of old combs that for various reasons have to be disposed of, you can just bet that the capping-melter will have to do the job. Anyway, it ought to be built to do both. Again, all the slumgum of Severin's new melter falls thru the tubes on to a flat surface. To be practical it should all fall upon a screen, to be withdrawn on occasion, and dumped into the wax-boiler, and the honey and wax should run right down a sloping surface to a gutter.

My melter was designed to melt up, if necessary, every surplus comb in an apiary of 200 colonies, such combs being sometimes

filled with a dense honey which the four-frame hand-power machine will not extract at any speed. The amount of slumgum can be imagined, and also the needed capacity of the melter to do an effective day's work. I tested the previous melter whose details were, to all intents, the same as the one about to be described, in the presence of the government apiaries inspector, Mr. S. V. Westbrooke. We placed five quarts of hot water, not boiling, in the melter; lighted and pumped up one No. 5 Prince's kerosene-stove to work the melter. Then we cut out of their frames 20 Langstroth combs filled solid with partly candied honey, wires and all. This was in mid-winter, when the honey was all but frozen. In the space of twenty minutes from lighting the stove the melter was empty. The inspector had held intermittently a thermometer so that the stream from the melter fell on the bulb, and in no case did the temperature go over 146 degrees until the last few ounces were running away from the melter and the water boiling at a terrific rate, which accounted for the heat rising to 165 degrees. This was for a few seconds only, before we put the stove out, the trial having been a complete vindication of the perfection of the melter to handle solid combs, let alone cappings. That melter differed from the one about to be described only in having a central tube that, sloping each way, necessitated a gutter on each side, and a cross-gutter at the end to connect them. This cross-gutter used, upon occasions of a great rush of material, to block up, as it was not water-jacketed, and the present melter also permits of the screen for holding the slumgum, the previous one sending everything into the separator.

Before I describe the melter I want to impress upon beekeepers a few facts about latent heat. I find not a few melters whose many tubes are filled with water which has no possibility of coming in contact with the heating surface of the lamp. This is a great error. Steam contains 962 times the latent heat that boiling water does. That is to say, that, given a certain amount of boiling water applied to a surface, it would melt only one 962d part as much honey or wax as that same amount of water connected with steam would melt; so that all heating surfaces in a melter should be surface-heated with live steam, and not merely boiling water. Furthermore, the deeper the tube the cooler the lower portion of that tube as compared with the top. Now, if we employ a tube of small size the boiling steam melts the honey first which is at the top of the tube. This honey flows down

the small diameter on to the (usually) flat but somewhat cooler surface below the tubes, and there meets no other cooler wax to which to give any surplus heat over its own melting-point, which, it is more than likely, it absorbed from the tube—i. e., supposing the tube, of course, to be filled with live steam and not merely just of boiling water. Therefore the deeper our tube the less damage from honey being too long heated; and the more efficacious our melter from honey which can hardly avoid becoming super-heated at the top of the tubes giving off its surplus heat to that almost



Cross-section and plan view of Bartlett-Miller's capping-melter.

but not quite melted wax lying nearer the bottom of the tube. This is a scientific principle which, once only a theory with me, I have proved to be fact by methods which it is out of place at this juncture to explain. Suffice to explain that, the deeper our tubes, the more effective, and the less dangerous our melter will be up to a certain point; for we must not have our tubes too deep for practical work or we should never get enough honey into the melter to cover them.

I wanted a melter that the ordinary practical bee-man could, if necessary, make

at home. I also wanted one that the bee-supply firms would sell at a figure more reasonable than, say, Mr. Beuhne's machine sells at; lastly, one which had not the bug-bear of a large number of small tubes to run up cost and trouble.

THE NEW MELTER.*

My melter is 24 inches long (could be any length). Fig. 1 is a cross-section view of the end of the melter. The inside end of the melter should be cut out with the snips ready for the ends of the tubes to be soldered in. Let the ends project inside, say $\frac{1}{4}$ inch, and use the "trough" so formed to run your solder down. After you have the ends of tubes soldered into both of the inside walls, one at each end, the outside wall, which makes the water-jacket, is simply flanged around in a piece of scantling with a mallet, and the whole job is ready for the water-filling funnel piece to be soldered on over a hole cut at the lower part of one end. Keep this filled fairly low, so that you can see the water in it and use it as a gauge to see when refilling is needed.

After studying this melter you will observe that the spaces at the bottoms of tubes are available for the full width of the 5/16-inch when old combs are being melted, but that the crinkled wire is used when clean honey and wax are going thru. The recess in the "honey-shed" is to allow the wire-cloth screen to fit in, which prevents any slumgum passing it should the wire edge of the screen get slightly bent from abuse when shaking slumgum into the wax-boiler. The operator may use two screens alternately, or scrape the one down as occasion demands.

All the weight of wax and honey is used to press on the wedge-shaped surfaces. That there may be no outside walls to throw away heat compared with the surface of the tubes, the two end walls and the two sides are wood-jacketed so that all the heat is kept in the melter. The tubes have an aggregate heating surface, apart from the honey-shed, of 1584 square inches, or 11 square feet—a surface not nearly attained as actual wax-contact surface by any other

melter ever designed. It will be found advisable to solder the exit-tube into the inside wall so as to allow that part of the honey-shed soldered into the same opening to go over, not under, the exit-tube, for, if soldered under the tube, it dams back any small amount of slumgum which may slip down while changing screens.

The screen and clips to support it need no describing. Any one can bend fence wire to shape, and cover with wire cloth; but keep the screen midway between the top edge of the gutter and the bottom of the front tube. This gives a clearance of three good inches, both above and below.

Either sheet copper (tinned) or heavy galvanized iron will answer, altho the iron pits inside badly after two seasons. Do not forget to use the melter with the exit end of the gutter two inches lower than the other end, and place the filling formed at the top end. Then if you always see water in the funnel at the top end you can rest assured that your melter is not running dry. You will find you will not be troubled much with refilling, as the steam has plenty to do at melting, and very seldom gets a chance to evaporate.

Everything runs completely away. The slumgum is held back by the screen, and everything is on a fairly steep slope, and all wax and honey are off the melter less than 30 seconds after melting. I have run honey thru this melter twice after recandyng, and cannot see that it darkened one particle. Of course, when old combs are going thru, one must expect a darkening as a result of hot honey absorbing stain from cocoons, pollen, and general comb dirt; but with fairly new comb no discoloration results; the honey runs away too rapidly. As to cappings, three people will not keep it going if the stove is kept going properly (unless they are regular comb-butchers). The novelties I claim in this melter are, rapidity of honey clearance from melter; increase of melting surface; separation of slumgum, thus preventing discoloration; and impossibility of overheating the contents at any point.

Kihi Kihi, New Zealand.

* Perhaps the readers will get a better idea of this melter if we explain briefly that Mr. Miller uses three large wedge-shaped tubes, of the dimensions given in the cross-section drawing, which, with the corresponding sloping sides of the melter, make four spaces thru which the cappings and honey pass, which gradually decrease in width until the final opening is only 5/16 of an inch into the straining-compartment beneath. All the tubes being heated by steam, an unusual amount of melting surface is thus provided. Above the tubes is a hopper-shaped compartment into which the cappings and honey fall from the knife. The narrow spaces between the tubes are filled in with kinked wire when desired, to prevent unmelted wax from falling thru.—ED.

Amount of Stores Needed

I have noticed the editor's reply to Mrs. Allen, page 969. In this locality we need ten combs about full. The hives, bees, combs, honey, and all should weigh at least 65 or 75 pounds, November 1. If a colony with this amount of stores has a good queen it will be in splendid condition next spring.

Havana, Ala.

J. S. Patton.

Heads of Grain From Different Fields



The Backlot Buzzer

BY J. H. DONAHEY

Talk about hard luck, a prominent bee-man out in Indiana prided himself on the way his hives were arranged in nice neat rows out in his back yard. Somelody thought they were tombstones and filed a complaint against him for keeping a dog cemetery inside the city limits.

Wiring Frames and Transferring Colonies

My plan of wiring combs may not be new, but I have never seen it mentioned by any one. I use a common soft-iron wire about No. 14 or 16. In fact, I use common wire used for baling hay. I cut a piece exactly as long as the frame is wide, so as not to extend out. The wire is nearly the size of the hole in the frame made for it. I then run the wire thru the second hole from the top, and fasten it to the wax by pouring a little melted wax along the upper edge of the wire. This fastens it securely. It might be better to use two wires—one thru each of the two center holes in the frame. I put up some with two wires, and some with only one. I cannot see but one wire answers every purpose. The bees will draw out the combs right over the wire, and I have yet to see a comb the least sagged. You can certainly get perfect combs drawn by this method. A wax tube or wire-imbedder might be better, for fastening the wire to the combs; but as I did not have one I simply ran a little wax along the top edge with a spoon. You can do it very fast.

Here is my method of transferring bees from box hives: I lay the box hive down on the side. From the top end I measure down 20 inches and saw thru the board. I then pry this piece of plank off, set my hive-body over this hole after putting in three or four frames of drawn combs containing some brood, fill out with foundation, put on the cover, and the job is completed. The bees will go immediately up to cover the brood, and soon the queen will be up, when you can put your excluder under. When I have the old box open I remove as much of the old wax as possible, so as not to interfere with the brood. You can nail a piece over the bottom of the old hive, just leaving an entrance for the bees. The piece taken from the old hive can be used for this purpose. Should the hive body be a little wider than the box you can easily nail a strip along the side to make it the desired width.

Newbern, N. C.

F. A. Ganes.

[The principal objection to the use of one or two heavy wires instead of a greater number of fine wires is that the combs are not as well protected against breakage, either in the extractor or when they are being handled.—Ed.]

The New York Contest

We are getting many inquiries, asking for particulars about our proposed postal-card scheme having for its object the booming of honey as an article of food. Some want to know what ideas we want incorporated, others what size the sketches should be; others ask whether we want them in colors or in black; whether photos of apiaries would do, etc. To all these inquiries we can only say, "This is for you to work out." It is more the idea than the perfect execution of the idea we are after.

A very good thing has been suggested to us—a label to be pasted upon the top of every honey section as it stands in the shipping-case, the label nearly or entirely to cover the wood, with reading as follows:

This section of honey (14 oz.) equals in food value	
24 oz. beefsteak.....	(30c)
30 oz. of codfish.....	(40c)
20 eggs	(50c)
11.2 oz. cream cheese.....	(16c)
2 quarts of milk.....	(16c)

[The comparative figures on label were taken from *American Bee Journal*, Dec. 1915.]

One of our committee says: This is the best thing which has been offered, altho not exactly in line with the postal-card scheme. But we may recommend it, also in connection with a photo of the articles named, all upon a postal card.

H. L. Case, F. Greiner, W. F. Marks,

Committee.

Wild Bees and Their Honey

I am sending a few of the bees variously called Mexican bees, Spanish bees, and wild bees. The comb is of paper instead of wax. Their honey is said to be very sweet, and is deposited in the comb in layers round and round the circumference of the nest. The nest is built in the branches of some tree or shrub. I do not believe that the honey is any better than that of the domestic bee, but depends altogether upon the character of the nectar obtained, just the same as that gathered by any other bee. The report of its excellence comes from the testimony of some boys who robbed out a nest; and the extravagance of their statement is probably the outgrowth of an intense love of honey gratified in an unusual and unexpected manner.

These little fellows stung me up some when I caught them to put them in the cage, but especially when I cut off a scrap of their nest to send you. The nest looks like a hornet-nest, egg-shaped, about 12 inches long by 10 inches thru.

La Feria, Texas. George M. Plumb.

[The bees sent by our correspondent are considerably smaller than ordinary honeybees and are more brilliantly colored. The head and thorax look very much like those of ordinary bees except that they are smaller. The abdomen is quite different. The upper part is not segmented, but bald and jet black. The lower part is segmented, the segments being a brilliant light yellow, approaching somewhat the color of yellow-jackets. The abdomen ends in a sharp point. We have seen similar bees occasionally, and they are found quite frequently in Florida. Sometimes there are strains or varieties very similar in shape and size, but having a greenish luster.

The nest, as mentioned by our correspondent, is fibrous; and, with the exception that the cells are smaller, it looks very much like a hornet-nest, the material being evidently made in the same way, and looking like paper pulp.—Ed.]

Probably Pure Honey

We are mailing you under separate cover part of a tumbler of honey. This represents some of the contents of some tumbler honey picked up on the market which is put up by a Chicago concern at a very low figure; and while the color is good it does not taste just right. We would thank you to advise us just what you think of this honey.

Penn, Miss.

The Penn Co.

[We should not be suspicious of this honey, because it seems to have sufficient flavor to justify the belief that it is pure. If it is adulterated at all it is adulterated with invert sugar, and the price of invert sugar at the present time is such that it would be practically impossible to put that in and make any money, providing the hon-

ey was sold at a low price. It is our opinion that this is a sample of pure honey; but you will remember that good honey of good flavor is selling at a very low price, and it would be possible to make up a blend of several of these cheap honeys and still keep them all pure.—Ed.]

Four Untested Queens, but Purely Mated

After reading Mr. Webb's experience with untested Italian queens, page 74, Jan. 15, and the editor's request for others' experience, I take the liberty to send mine, tho in only a small way. Last summer I sent for five untested Italian queens from four different breeders and succeeded in introducing four, one from each breeder, and all four proved to be truly mated.

Tuxedo Park, N. Y.

E. Wilson.

Death of Jacob Creighton

Jacob Creighton, of New Haven, Hamilton County, Ohio, a beekeeper of fifty years' experience, died December 11, 1915, of pneumonia. He was a veteran of the Civil war, and in his 71st year at the time of his death. He leaves four daughters to mourn his death. He owned an apiary of 103 colonies, and was very successful as a beekeeper, and exhibited bees and honey of his own production several years at the county fair at Carthage, Ohio.

Hartwell, Ohio.

C. A. Brooks.

Making Hives

By Grace Allen

Oh, it's tap-tap-tap—
Hear the hammer striking,
Shaping up a thing today for years and years
to come,
Making of some piney boards,
Nails and honest effort,
A home for bees to live in and to labor in
and hum.

So it's rap-rap-rap—
See the nails drive under,
Patient nails to cling and hold while bees
throb out and die,
While days with tender dawns
And pomp of purple evenings
Close their scrolls forever as the years go
rolling by.

So it's rap-tap-tap—
He and I together,
Making hives with patient nails and vision-
ing and thought.
Nations are at war;
Yet not alone in battle,
But here in work and wonder too, His pur-
poses are wrought.

A. I. Root

OUR HOMES

Editor

Search me, O God, and know my heart; try me and know my thoughts; and see if there be any wicked way in me, and lead me in the way everlasting.—PSALM 139:23.

Nearly sixty years ago an old gentleman gave me some advice that has been of benefit to me all my life. He was a money-lender. I went to him with my father to borrow \$500, in order that I might go into business as partner with the man I was working for. My father was to sign the note with me. When told *why* I wanted the money Mr. Beekman said something as follows:

"My young friend, I have money to let, and it is my business. Your father for security will be all right; but I want my money to do good, and not harm. I should like to give you a little advice; but judging from past experiences with young men, I fear it will do no good."

I urged him to go on.

"Well, you have doubtless heard hard stories about me. Perhaps you have heard me called hard names."

I assented, because it was true.

"Well, this is because, if I loan money at a reasonable rate, I must have it back according to agreement. I should go bankrupt myself if I did not insist on this. If I understand, you have already a good job at fair pay."

I assented again.

"Well, even though I have money lying idle, and want to have it earning something, I would advise you at your age to stick to work and *earn the money* instead of borrowing. By the time you have earned \$500, or something like it, you will know better how to take care of it, and perhaps be able to start in business alone."

He then turned to my father and remarked that "Boys in their teens seldom listen to any such advice."

Right here I surprised both my father and Mr. Beekman by saying:

"Mr. Beekman, I not only thank you from the bottom of my heart, but I am going to take your advice;" and as father and I drove home he said I had lifted quite a load from his mind by the course I had taken. In a year or a little more the man I was going in with ran away, leaving debts right and left unpaid.

During the past season, on account of the large amount of money we have been handling we have borrowed more money than usual. The bankers loaning us the money said:

"We are glad to help great enterprises by giving them such accommodations as their statement entitles them to; but we must be *sure* there is no blundering carelessness or crookedness in reporting conditions. Have your business audited by some *outside disinterested* firm, and we shall be glad to accommodate you in every way in our power."

This was so strikingly like what our good old friend Mr. Bleekman had said to me years ago that it brought the whole thing to my mind.

This "auditing" business was a new thing to me, and I asked a great many questions. Of course national banks are audited every so often by a government inspector, and in the same way there are firms in our great cities that make a business, when required, of going all through any factory or great business concern so they may certify to the great world at large that the institution is not a hollow shell or "make believe" that may "bust up" almost any day. This institution might do a lot of good by informing the *proprietors* of things they didn't know about. We have lately been told in regard to the *Eastland disaster* that the paid inspector had not looked the old boat over for the last *three years*.

Right over in Summit Co., adjoining Medina Co., they recently found a man who had been receiving a salary *for years* for caring for canal locks, after the locks of the old unused canal had *rotted away*! When called to account, he replied that, as nobody objected, he thought it all right to draw his salary.

Does it not begin to look as if some outside "auditing institution" were needed all over our land? And finally, dear friends, is there not *greater* need that the Holy Spirit should look into your hearts and mine to see if there be any crookedness or cheat, and admonish us?

While pondering on this matter it occurred to me I had seen something in God's precious word that "hit the nail" exactly "on the head," and after considerable hunting I found it.

Dear reader, are you ready to make *with me* this prayer of David *your* prayer?

"Search me, O God, and know my heart; try me and know my thoughts; and see if there be any wicked way in me, and lead me in the way everlasting."

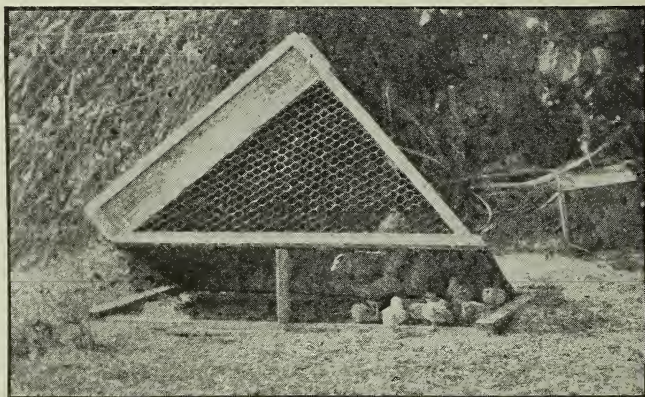
POULTRY DEPARTMENT

THE 17 CHICKS AND THEIR MOTHER.

I told you they were "safely housed" (?) near our bedroom window, etc.; but before I tell you what happened I want to give you a picture of them, and tell you how to make a very safe and efficient home for a hen and chickens, without very much labor and expense. First, get a nice smooth grocery box, rather long and wide, and shallow. The one pictured above was 34 inches long, 20 wide, and 8 deep. I removed the cover carefully, and nailed one end against the end-board inside of the box, so as to make a sort of letter A. Then the back side was boarded up with shingles placed up and down, and inch-mesh netting tacked over the front side, as you see in the picture. To cover the edges of the wire netting I nailed strips of planed lath over the front as you see. Well, I used this last winter without any floor but the ground under it, and no harm came to the chicks. I don't like any kind of wooden floor, neither does the mother or chicks. If right on the ground, the whole thing can be moved over to fresh grass, the hen can scratch and dust herself, etc. But, listen! before the chicks were a week old a skunk or opossum dug under a back corner and pawed out two chicks. The hen then moved over to the opposite corner, where he dug under again and got two more. If you, my friend, have

"been there," you know something how I felt about my "Christmas present."

I moved her and the 13 remaining chicks to one of the houses where netting is let down into the ground about a foot all round; but in two days the same "varmit," being *hungry again* for a "chicken dinner," dug down and managed to get thru at one



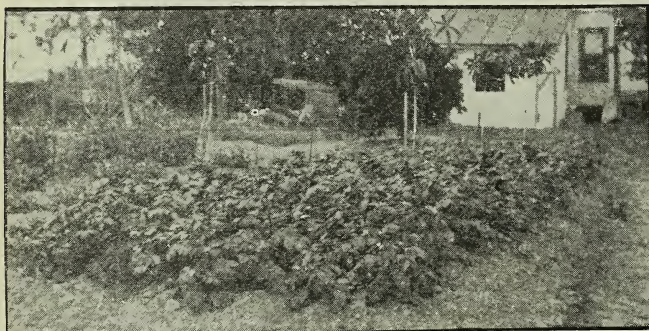
The hen that stole her nest out in the woods and brought home 17 chicks

corner and took *three more*, leaving only eleven. I said to Mrs. Root and Wesley:

"This sort of business *is going to be stopped—on our chicken-ranch, any way.*"

I made a square frame of wood, 48 x 20 inches, for the coop to rest on; but instead of covering this with a flat piece of netting I made a sort of basket about like the lower part of a corn-popper. Then we dug out a place for it, putting the dirt back into the basket, and now "mother biddy" can scratch and roll and dust herself on her dirt floor just as if there were *no* wire netting under her. Well, we have our house for sitting

hens; but the same varmint (or one like him) dug under, as I have explained, and left only the egg-shells where a hen was almost ready to hatch; and altho this room is 6 feet by 8, we have just "floored" it entire with netting about a foot below the ground. I feel some better now, but I am not *quite* over being "mad" about the loss of my chicks yet. So



The three rows of potatoes shown on p. 129, Feb. 1, just three weeks later. on Christmas day.

I bought 10 cents' worth of strychnine, and am going to try *that*, and this reminds me that I forgot to tell you that, during the "fracas," I caught him (or them) in two different traps, but he in some way pulled out of both.

A BED OF POTATOES PLANTED NOV. 18, 1915.

The picture will show you, if you examine closely, the way in which we make our raised beds with deep wide paths between. This bed contained a heavy stand of feterita, as I have explained, that was ruined by blight; and before planting the potatoes it was all spaded under, and is now rolled so the potatoes have just what they like—a mass of decaying humus in which to grow and expand. In the background you have a better view of the great 3½-year-old rubber tree, 25 feet high, and 50 feet spread. The coop that held the 17 chicks is at the foot of the tree among the pineapples.

HOW TO MAKE HENS LAY.

I am reading the poultry department in GLEANINGS as well as every other. I have at present 20 Plymouth Rock hens. I feed them regularly, giving them from one to two quarts of wheat twice a day in the straw, or some place where they have to scratch for it, and I pound some green bones and broken chinaware on a flat rock once or twice a week. I wish that some time you could be here and hear the music they make. As soon as they hear the hammer strike they come from every direction and pick the food off the rock. I have not hands enough to keep their bills off from the rock. My hens pay me well for that extra care, and a few eggs all winter until January, when they start to do better every day. I have sold since Jan. 1 21 dozen and 7 eggs. The highest price has been 30 cts. for the first 3 dozen; then the price dropped to 20 cts. on March 6. I sold 5 dozen for 15 cts. per dozen, making a sum of \$3.50. Now, March 28, eggs sell at 13 cts., and it is said the price will drop to 10 cts.; but as we are six miles from the nearest store we keep them for our own use, and take the good sizes for setting, because it does not pay to drive a horse to town or take them on horseback as I did March 6, riding to town eight to nine miles.

All my neighbors a mile around me are wondering, and ask me what I feed my poultry. I told them the full truth about it. We have now, since this winter, one of our neighbors so close by us that the chickens would get mixed up were it not for the difference in race. I have Plymouth Rocks, while she has Rhode Island Reds. The first days her chickens came over here searching for food (and found some too) I waited until they had roosted, and then took them over to her. My! how light they were! I thought I had only a handful of feathers in my arm. She got her first eggs the second week in March; one every second day.

One neighbor fed 120 chickens all winter without getting one egg in return; but now, as they started to lay, he sold most or half of them because wheat is high and he ran short. Would it not have been better to sell that number last fall and feed the rest a little better? He also has the idea that if he sows the feed in the straw they can't find it, and sows it on a plain clear ground.

I knew a lady in Colorado who used to say, "If my hens would lay better I would feed them more." What do you think about that mistake? I am sure

if the hens could speak they would have said the same, but the other way, thus: "If you would feed us more we could lay more eggs." I once was packing in about 24 dozen eggs for market when she came in the house. She was astonished, and remarked that she had never seen an egg for a long time.

We raised eight children—four boys and four girls. The oldest one is eighteen, and we never consulted a physician or had one in the house except when our little son at the age of four broke his leg above the knee. Then, of course, we were compelled to call for the surgeon, about nine miles off, and the bill was \$20. The boy is now eight years old, and his limb is just as good and strong as the other one, and not a bit shorter. The man did his work well, and came only that one time. He told us what we had to do, and we got along all right.

In regard to the high cost of living, we agree with you. We use only graham for bread, and I put only two or three cups of white flour in it. We take two to three sacks of wheat to a neighbor, run it twice through the chopper or feed-grinder, and the coarse parts, or bran, which remains in the flour-sieve we use for breakfast cereals—cook it well and eat it with milk. We also use wheat for coffee, so we reduce the cost of living to a great extent.

MRS. MARGARET GREEN.

Weiser, Idaho, March 28.

ELECTRIC-DRIVEN VEHICLES AND STORAGE BATTERIES.

I have several times on these pages mentioned my electric automobile, and told what a convenience it is, especially for an old man. But I did not think, until lately, to contrast the expense of running an electric compared with a gasoline vehicle. Last fall, however, I was offered an electric in very good repair, at a low price. While the batteries in mine are sufficient for a trip of only thirty or forty miles, this new one was good for sixty or seventy. Before taking the machine, however, I made inquiries in regard to storage batteries, and was somewhat discouraged on learning that the expense of renewing batteries, without saying anything about the cost of the current, is away beyond gasoline. As an illustration: Ernest has a gasoline machine that will carry five passengers at a little over half a cent a mile when gasoline was down as low as 13 cts. a gallon,* and a gallon on fair roads has run him 24 miles. Well, a storage battery with 28 cells will, I am told, give probably 6000 miles, and likely give good service for two years. But when the battery needs to be renewed, at the present cost of metals it would be about \$180. This would be 3 cts. a mile for the upkeep of the battery, against half a cent a mile for gasoline.

While at the Ohio State Fair I saw a neat little outfit for lighting rural homes by means of an electric current, at a price of only about \$100. When I inquired about

* It is now 22c and going higher.

renewing the battery he said they guaranteed them for two years; and renewing the batteries costs \$20, or \$10 a year. Now, we have seen that the cost of running a battery for an automobile is about six times as much as for gasoline. From this I gather that the cost of running electric lights in the home is something like six times as much as if the current were taken direct from a gasoline-engine. In that case, however, you could have light only while the engine is running. Therefore it behooves one who has such a rig to get his light from his storage battery just as little as possible.

We hope there may be some improvement made in storage batteries so as to reduce the cost. Electric automobiles, on account of the above, will probably be mostly used by those who have plenty of money—at least the expensive ones that will go from 75 to 100 miles with a single charge of battery. The convenience of electricity, especially for short trips up town and around home or between one's home and his place of business, will always make them in demand. When I am tired of hoeing in the garden, it is a very great privilege to get into my little electric car and rest while I run over to the factory or run around town and visit people. Where I am well acquainted, the grocer will bring me whatever I wish without my getting out on my feet at all. It is also, on account of its simplicity, well

adapted for women to manage and to run around with. Where one has a plant that furnishes a current, as we have, the expense of charging a battery is not much. Where, however, you are obliged to pay the town or electric lighting company for charging your batteries, this involves considerable cost in addition to the expense of renewing the batteries when they are used up. The present high price of lead is just now making storage batteries still more expensive.

Later.—I clip the following from the *Cleveland Plain Dealer*. It comes from West Orange, N. J., and is dated Sept. 20:

GOOD BY, HORSE; EDISON SAYS STORAGE BATTERY FOR DELIVERY WAGONS FINISHES DOBBIN.

"It is the beginning of the end of the horse. Horses in the near future will be used only as ornaments. Their commercial value will be nothing."

Thomas A. Edison laughed today at his plant here as he surveyed another of his accomplishments—a storage battery for delivery wagons.

Before half a hundred experts he explained the mechanism. They stood awe-stricken as the light horseless delivery wagon rolled around the yard.

I have been for some time watching and hoping that Edison or somebody else would invent a storage battery that would not cost so much for the upkeep; and the clipping above may be an indication of what is coming. But, as I have outlined, the objection to electricity in place of a horse has been, and is at present, the expense of renewing the battery when it is used up.

TEMPERANCE

ANOTHER VICTORY IN THE LINE OF WHISKY ADVERTISING.

We clip the article below from the *New York Evening Journal*.

No whisky advertisements in any of the Hearst publications hereafter.

Public Health, Public Morals, and Public Righteousness Demand a Campaign against the Drink and Drug Evils.

I note in a recent issue of *The American* an advertisement of a whisky masquerading as a medicine.

I wish all our papers to reject all whisky advertising of whatever kind, and all advertising of any ardent liquors, and all advertising of any medicinal preparations containing alcohol or opiates in habit-forming quantities.

Furthermore, I do not think that passive opposition to such great evils as the drink habit and the drug habit is sufficient for forces as powerful and as vital in the community as our newspapers.

I think our papers have more active duties and more positive responsibilities. I think they should campaign for a system of sumptuary laws.

1.—To prohibit the sale of injurious and habit-forming drugs except by the state and upon the prescriptions of regular physicians.

2.—To prevent the sale of alcoholic beverages except where the proportion of alcohol is fixed at

some definite and known innocuous proportion.

3.—To make the taking or administering or prescribing of alcohol or opiates in habit-forming quantities a criminal offense, from the penalties of which regular physicians shall in no way be exempt.

The campaign against the drink evil and the drug evil is a matter of public health, of public morals, and of public righteousness which it is the duty of our papers actively and aggressively to promote.

WILLIAM RANDOLPH HEARST.

WHO ARE THE VOTERS, AND WHO DO THE VOTING ON THE WET AND DRY QUESTION?

Before discussing the above I want to quote a little from the *American Issue* of Jan. 21:

Mr. R. W. Walters, a structural-iron worker of Toledo, was sent to East Youngstown at the time of the riot, by the *Toledo Blade*, to report what he saw. Mr. Walters says:

"More than one man was seen with a torch in one hand and a tin cup of whisky in the other." Mill property was not attacked, but the mob looted and burned the homes in the community. Mr. Walters further says, "The rioters were so drunk that two gangs of strikers met on a hill and fought each other."

REAL CAUSE OF THE TROUBLE.

The *Coshocton Tribune* calls attention to the fact

that employers and employees were not far apart in their negotiations, and their differences were not of a nature to provoke the outbreak; therefore there must be another reason, and then the *Tribune* gives the reason:

"The entire affair was only another monument to the ability of the open saloon to convert an irregular gathering into a whisky-crazed riot. *Had there been no saloons in Youngstown there had been no riot.* Had the men who composed that mob been deprived of booze the state of Ohio had been spared another whisky-inspired disgrace, and the city of Youngstown the humiliation of appealing for state troops to maintain order within her corporate limits."

YOUNGSTOWN WET AND DRY.

The saloons in Youngstown opened last Friday afternoon after being closed for five days because of the riot. The first 12 hours following the opening two men were sent to the hospital with battered heads, one man was held up and robbed while intoxicated, and 32 others were arrested on charges of intoxication, disturbance, and disorderly charges growing out of drunkenness.

This is the 12-hour record as shown by the police blotter. During the five days the saloons were closed only ten persons were arrested for intoxication, and these secured liquor from nearby towns.

Now, then, friends, is it not true that the class of people described in the above are the ones who voted Youngstown wet? and will not these people do it again? Was it not the same class down in Cincinnati, that kept the whole state of Ohio wet, contrary to the wishes and intention of the God-fearing and law-abiding people of our state? A while ago there was talk of letting only those vote who could read and write; but it didn't pass, and I am glad it did not. Well, just now the best and most highly educated women (and *mothers*) of our land cannot vote; but the confirmed drunken inebriate votes, and, so far as I know, so does the most desperate criminal who happens to be out of jail. Is it not getting to be about time to draw a line somewhere?

IS WHISKY A MEDICINE FOR GRIP OR ANYTHING ELSE?

We clip the following from the Bradentown *Evening Journal*:

A WARNING.

Whisky-dealers, ever eager to increase their business and their profits, have taken advantage of the prevalence of grip in the East, and thru newspaper advertising have sought to increase sales by representation that their goods are a panacea for the ills of life, including grip.

The Commissioner of the Health Department of New York has issued a warning against the use of whisky by persons suffering from the grip. This action by the Health Department authorities was the result of recent advertisements claiming whisky to be a sure cure and preventive of the grip.

"There is nothing more injurious to the patient suffering from grip than whisky," said Dr. Charles Balduon, director of the Bureau of Public Education of the Board of Health. "This Department wants to refute the ridiculous claims sets forth by whisky concerns in some of the Sunday papers."

"Whisky-drinking should be condemned in general; but for victims of colds or bronchial troubles, whisky acts as a poison. Such claims attributed to

whisky are misleading to the public, and do great harm."

WANTED, BRIGHT BOYS.

If the following, clipped from the *Gospel Trumpet*, could be put into the hands of every father who has one or more boys it doesn't seem possible we should have so many who would vote "wet."

Wanted, some bright boys full of life and cheer, to stand at my counters as drinkers of beer; to fill up the ranks, without further delay, of the army of drunkards fast passing away. Sixty thousand a year will only supply the loss to our trade from drunkards that die. Send those who can toil, or have wealth to bestow, for profits are small on old drinkers, you know. Let them come from the shop, the school, or the home, we'll welcome them all whenever may come. Let mothers surrender their sons to our cause, and fathers keep voting for good license laws. For if you will vote to keep running the mill you must furnish the grist or the wheels will stand still.

"GRAY AND TATTERED, AND KNEE-SHAKY."

Dear Mr. Root:—I am inclosing a clipping that I am sure will please you to read. I hope the good work may go on until a saloon cannot be found on this green earth. But why not commence at the root of the evil, the breweries and distilleries?

Indianapolis, Ind., Jan. 15. J. F. KIGHT.

Below is the clipping:

POOR OLD JOHN.

Last year alone, 15,000 saloons were put out of business, and more than 100 breweries and distilleries were closed, it is believed, forever.

Say what you will, John Barleycorn is having a hard time, and we wouldn't give 30 cents for his future. He is despised in the best circles, and the friends of his youth know him no longer. He is old and gray and tattered, and his knees are shaky. He totters. He is a pariah. He is a criminal; and when he eventually gasps his final breath and the sheet is pulled over his head there will be more rejoicing than mourning.—*Macon News*.

RENTING PROPERTY TO SALOON MEN.

There is a conscientious awakening in the hearts of individuals who have been renting property to saloon men. They are realizing that to accept such rents is to become a partner in the whisky business.

As an example, at the Sailors' Snug Harbor, which is located on Staten Island, are operated on its property fully 100 saloons. This institution is a home for sailors; and many years ago, when it was first organized, a farm was presented it. The city grew, and now the farm is simply a part of the city, covering ten squares. The income from rentals is great, and especially from the saloons. The trustees of this institution recently decided against the saloon, and as fast as the leases expire none will ever be renewed.

This will add one among the largest dry sections to the city of New York, and is a fine example of the waking up of conscientious men to the fact that there is a good way and a bad way to make money.—*Southern Fruit Grower*.

THE "KIDNEY CURE" SWINDLE.

We clip the following from the *Rural New-Yorker*:

The United States Government is after the manufacturers of so-called "kidney cures," and it has been able to show up several of them as frauds. Many of these so-called "cures" contain from 40

to 50 per cent of alcohol, probably in the form of brandy. The Department states that alcohol is a medical irritant, dangerous in many cases of kidney disease. There seems to be no doubt that these so-called remedies are merely substitutes for rum. They are practically worthless as remedies, and actually harmful, not only because of the amount of alcohol they contain in its effect upon the system, but because they establish the taste for liquor. A case is reported to us where a man died after several years of ill health, and it was found that he had swallowed three barrels of one of these remedies, and paid for it at the rate of nearly one dollar a bottle. There is no wonder he died, and the wonder is that his heirs had anything left after he passed away.

If the above winds up some of the malt whisky ads we can all rejoice.

CIGARETTES BARRED FROM THREE GREAT PERIODICALS.

The following letter, written to one of the employees of The A. I. Root Co., I am sure will cause rejoicing by all well-informed good people:

Mr. DeForest M. Olds, Scoutmaster,

Dear Sir:—With the exception of a few advertisements heretofore accepted, and which we are under obligations to print, no cigarette advertisements will hereafter appear in any of our publications.

Not only will we exclude cigarette advertisements, but after January 1, 1916, except in one advertisement previously contracted for, all reference to cigarette uses will be excluded from tobacco advertisements in our publication.

In spite of the fact that this policy will result in a reduction of several hundred thousand dollars in our annual advertising receipts, we believe we have taken the right course in this matter.

For the reason that several men connected with your organization have made inquiries about our advertising policy, we believe that you too may be interested in this announcement.

Very truly yours,

THE CURTIS PUBLISHING COMPANY.

The Ladies' Home Journal
The Saturday Evening Post
The Country Gentleman

M. E. Douglas,
Manager Sales Division.

Philadelphia, Pa., Dec. 30.

CIGARETTES—SHALL THEY CONTINUE TO BE FURNISHED FREE TO "CREATE AN APPETITE?"

I believe it is true generally, or at least I hope it is true, that the boy who is looking for a job stands no chance at all if his prospective employer discovers he uses cigarettes. Nobody wants him. I believe our oldest grandchild, Leland I. Root, has never before furnished anything for GLEANINGS; but while attending school at Lebanon, O., he forwarded the following clipping from the *Commercial Tribune*:

GIRL OR CIGARETTES? CAN'T CHOOSE BOTH IN TOWN IN KANSAS.

LEWIS, Kan., May 8.—"Fingers that handle cigarettes shall never hold ours." "It's nix on nicotine," so far as cigarettes and the girls of Lewis, Edwards County, Kansas, are concerned.

The Lewis Anti-cigarette Club now numbers in its membership virtually every girl in the Lewis High School, as well as many of the young women of the town outside of schools. On the membership roster are all of the leaders in the social younger set.

The avowed purpose of the club is to drive the cigarettes from Lewis. It was getting a foothold. High-school boys and young men of the town generally were taking to the habit.

Lectures from the pulpit, pleadings of parents, sober advice by physicians, failed to check the cigarette fad. So the girls of the town took it up. At a meeting held recently at the home of Miss Lottie Crabtree the Anti-cigarette Club was formed. It started with but six girls as charter members.

Before the week was over, virtually every girl in the high school was enrolled. The next Sunday the membership roster was swelled at the Sunday-schools. Now there are but few girls under 20 years of age who are not members.

The girls take a solemn pledge to shunt cigarette smokers, and keep it.

At first the boys regarded the club as a joke. But it wasn't so funny when revival meetings started in the town Sunday night, and after church every blessed girl deliberately cut the escorts lined up at the doors and struck out for home alone.

SOMETHING FROM A MISSIONARY ABOUT THE BEES OF SOUTH AFRICA, ETC.; ALSO SOMETHING ABOUT THE MONKEY THAT WAS STUNG TO DEATH BY BEES.

Dear Mr. Root:—For some months we have been receiving GLEANINGS, and are very much interested in many of the articles. We often wonder to whom we are indebted for the paper. I believe that if you were here you would not be in the bee business very long. However, in Abyssinia, some 250 miles from here, there must be great quantities of honey produced, for every year there are tons of beeswax brought down the Sabat. The bees of this part have stings and tempers too. Sometimes a swarm will occupy a place about our premises in which it is not welcome. I remember that once a swarm of bees found a box to their liking; and so, after some months, one of our missionaries thought that there might be some honey, so he rigged himself up with mosquito-netting and lifted the lid. That was as far as he got. Some flew so hard against the netting that it was driven against his face, and he got stung. He took refuge in the house; and during the rest of the day, when any one showed himself at a window the bees came dashing against it. Chickens were stung to death; a monkey died from the effects of the stings it received. Another time the box was opened and a little honey removed. The honey here is made from the blossoms of the acacia and other trees, and is quite strong. It is very dark in color.

The people here live on dura, a sorghum; but it does not produce from suckers after the first head is removed. C. B. GUTHRIE.

American Mission, Doleih Hill, Sabat River, Egyptian Sudan, Sept. 11, 1915.

Why, my good friend, almost ever since the time GLEANINGS was started we have been sending it free of charge to foreign missionaries like yourself. All we ask is to let us know at the end of the year that they read it and are glad to have it keep coming. We shall be pleased also to have you tell us about the bees in different parts of the world where they may be located.



Engine Power costs less —NOW

By using 1916 Model
WITTE ENGINES

Gasoline, Kerosene Gas, Distillate.

Buy Direct; Cash or Easy Terms

Stationary engines, 2, 3, 4, 6, 8, 12, 16 and 22 H.P., less than \$17.50 per horse-power. 6H.P., only \$97.75, F. O. B. Factory. Portable engines and Saw-Rig outfits proportionally low. Proven highest quality for 23 years. Before you arrange to try any engine, at any price, read my free book, "How to Judge Engines." This book shows you how to save and make money with an engine, whether you buy of me or not. Write me today—my nearest office.

**Ed. H. Witte, 1931 Oakland Ave.
Kansas City, Missouri.**

**1931 Empire building,
Pittsburgh, Pa.**

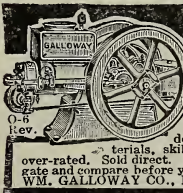


VIOLIN MANDOLIN GUITAR

FREE FINE TONE

or

CORNET To introduce our wonderful new system of teaching note music by mail, Violin, Guitar, Mandolin, Piano, Organ or Cornet, will give you a dandy instrument absolutely FREE and guarantee to make you a player or no charge; complete outfit FREE. Write at once. Special offer to first pupil. No obligation. **SLINGERLAND'S CORRESPONDENCE SCHOOL OF MUSIC, Dept. 65, Chicago, Ill.**

RELIABLE POWER

Nearly 100,000 Galloway engines in daily use. Long stroke, large bore, heavy weight. Built for hard, continuous engine-users satisfaction. All sizes, prices, styles. Modern design, few parts, best material, skilled labor. Positively not over-rated. Sold direct. Engine book free. Investigate and compare before you buy.

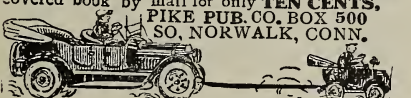
WM. GALLOWAY CO., Box 765 WATERLOO, IOWA

9875
7750
3950
3475
2675

FORD JOKE BOOK

All the latest and best funny jokes, and stories on the FORD automobile. Hundreds of them and all good ones. Also JITNEY jokes, Moving Picture, and Stage jokes. Laugh till you shake. A neat colored covered book by mail for only **TEN CENTS**.

**PIKE PUB. CO. BOX 500
SO. NORWALK, CONN.**




These Two Make Home

1,000,000 Homes are made more complete by the arrival of the **Farm Journal** each month.

For nearly 40 years it has carried its message of helpfulness and cheer to every member of the family on the farm. Father, Mother, boys and girls find their special departments, and the whole paper is interesting, stimulating and uplifting to one and all of them.

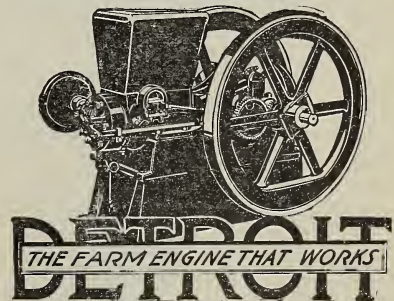
You get it for Five Years for only \$1. If at any time you are dissatisfied, say so, and your money for the unexpired time will be returned.

Send today for free sample of Farm Journal and free copy of Poor Richard Almanac for 1916.

The Farm Journal

117 Washington Square, Philadelphia

Only **\$12.35** per H. P.
THIS ENGINE



Built and guaranteed by the largest producers of farm engines—a regular glutton for work—simple, durable, powerful—four cycle, suction feed, make and break ignition—every part interchangeable—fully tested. Guaranteed to Develop Rated H. P. **SAVES FUEL, TIME, LABOR, MONEY**

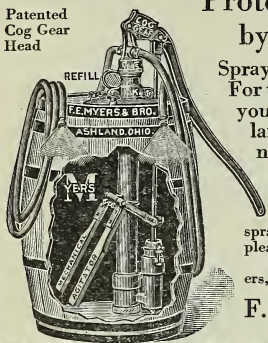
8 Horsepower Detroit only \$98.75
Can you beat that? Write for big illustrated Engine book to-day
Full Line Detroit Engines 1½ horsepower up
DETROIT ENGINE WORKS 373 Bellevue Ave., Detroit, Mich.

KANT-KLOG SPRAYER

Spray Your Crops

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.
**Rochester Spray Pump Co.
207 Broadway Rochester, N. Y.**

Patented
Cog Gear
Head



Protect Your Trees, Shrubby, and Garden by Using a MYERS Hand or Power Sprayer

Spraying is not a fad, but a common-sense business proposition. For the small sum you invest in equipment and the time you devote to your orchards, you receive in return a large crop of perfect fruit that commands the "top-notch price" in the market.

MYERS SPRAY PUMPS always produce the desired results by giving that thorough distribution of the spraying material that is so essential. They are made with the Patented Cog Gear Head and operate one-third easier than pumps of less improved design. If you spray with a Myers Spray Pump, and use good materials, you will be pleased with the results of your work.

Write for catalog showing Bucket and Barrel Sprayers, Power Sprayers, and all kinds of Spraying Accessories.

F. E. Myers & Bro., 351 Orange St., Ashland, O.
ASHLAND PUMP AND HAY TOOL WORKS



STRAWBERRIES

Give the Quickest, Biggest
and Surest Profits of
Anything You Can Grow

The work is so easy and simple that even beginners make big profits from the start. Our *free book* tells how.

Kellogg's Everbearers

produce big crops of big, fancy berries from June until November. Light freezing does not affect their fruiting.

The berries are in great demand. Price ranges from 30 to 45 cents per quart. Three months after plants are set, your profits begin. Our *free book* tells the rest.

A Kellogg Strawberry Garden

will add beauty, pleasure and profit to your home. Get our *free book* and learn how to supply your entire family with delicious strawberries the year round without cost.

Great Crops of Strawberries and How to Grow Them, the best and most complete strawberry book ever written. Fully explains the **Kellogg Way.** 64 pages of common sense, actual experience, strawberry facts, pictures galore.

Kellogg's *free book*, Kellogg's *free service* and Kellogg *Pedigree Plants* insure your success. Our *book* is worth its weight in gold—costs you nothing. Send for copy today. A postal will do.

R. M. KELLOGG CO.
Box 400
Three Rivers, Michigan



FREE BOOK

SWEET CLOVER

White Blossoms; the greatest money-making crop of today. Wonderful opportunities for the farmer who starts growing it. Builds up worn land rapidly and produces heavy, money-making crops while doing it. Excellent pasture and hay; inoculates your land for alfalfa. Easy to start; grows on all soils. Our seed all best scarified, bulled, high-germinating and tested. Quality guaranteed. Write today for our big, Profit-Sharing Seed Guide, circular and tree samples. AMERICAN MUTUAL SEED CO., Dept. 966, 43d and Roby St., Chicago, Illinois.

FRUIT TREES

Ornamentals, Evergreens, Shade Trees, Tested Seed, Vines, Berry Bushes, Everblooming Roses, Cannas and gorgeous bedding plants. Hardy Perennials that last for years—all offered direct to you from America's largest growers. Select, robust stock; over 1200 acres along Lake Erie. 7 kinds of soil. 48 greenhouses. Up to 450 carloads sold yearly. No risk. Safe arrival and satisfaction guaranteed.

Photo-Catalog FREE!

Tells all about planting and care. Precise and accurate descriptions of thousands of choice varieties. Special offers on high grade collections. Seed, Plant, Rose, Fruit and Ornamental Tree Catalog, 192 pages fully illustrated, sent FREE! Write today.

The Storrs & Harrison Co.
Dept. 243, Painesville, O.



GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.



SWEET CLOVER

BIGGEST MONEY-MAKER KNOWN—INVESTIGATE

The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Excels for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to start, grows everywhere, on all soils. Don't delay writing for our Big 100-page free catalog and circular giving full particulars. We can save you money on best tested, guaranteed, scarified seed. Sample Free. Write today.
A. A. BERRY SEED CO., BOX 966, CLARINDA, IOWA

Big Cash Profits

Every Week on Chicks. Write me for details showing how beginners with Belle City outfits make \$10 to \$25 a week on day-old chicks. Get the facts! Any man, woman, boy or girl can do it by following my plan and using my

25

TIMES

World's Champion Belle City



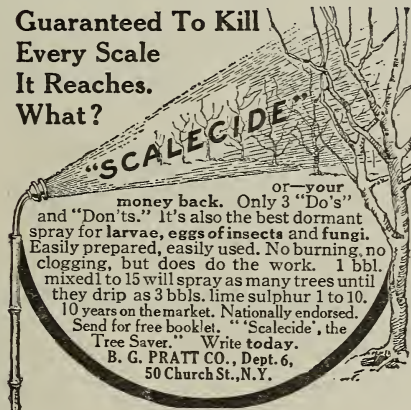
"Tycos" Cup

Incubator 402,000 in use. Get the whole story told by the Championship Winners in my big free book, "Hatching Facts." With book comes full description of incubator and brooder—my 10-year money-back guaranty—low prices—full particulars—and my \$1300.00 Gold Offers. Learn how I paid one user \$150, another \$50, many from \$45 down. Write me today for Free Book. Jim Rohan, Pres.

Belle City Incubator Co.
Box 69, Racine, Wis.

Freight
Prepaid, 1,
2 or 3 Months'
Home Test

**Guaranteed To Kill
Every Scale
It Reaches.
What?**



or—your
money back. Only 3 "Do's"
and "Don't's." It's also the best dormant
spray for larvae, eggs of insects and fungi.
Easily prepared, easily used. No burning, no
clogging, but does do the work. 1 bbl.
mixed 1 to 15 will spray as many trees until
they drip as 3 bbls. lime sulphur 1 to 10.
10 years on the market. Nationally endorsed.
Send for free booklet. "Scalecide," the
Tree Saver. Write today.
B. G. PRATT CO., Dept. 6,
50 Church St., N.Y.

SCARFF'S Fruit Catalog

Every reader should have a copy. Over 27 years growing the finest Strawberries, raspberries, Blackberries, Currants, Gooseberries, Grapevines, etc. All kinds of Fruit Trees, Ornamental Shrubs, Privets, Barberry, Asparagus, Rhubarb, Horseradish, and Farm Seed.

Our Nursery and Farms comprise over 1200 acres in the fertile Miami Valley. Our 40-page catalog is yours for the asking. It is full of just what you want to know about fruit-growing.

W. N. SCARFF, Lock Box 50, New Carlisle, O.

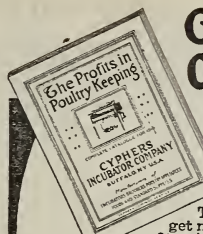
EVERGREENS

38 Hardy Tested Varieties

Best for windbreaks, hedges and lawn planting. Protect buildings, crops, stock, gardens and orchards. Hill's Evergreens are Nursery grown and hardy everywhere. From \$1 to \$10 per hundred. Hill's Evergreen book and 50 Great Bargain sheet sent free. Write today. World's largest growers. Est. 1855.

D. HILL NURSERY CO., DUNDEE, ILLINOIS
Box 2460 Evergreen Specialists

Get FREE Chicken Book



Our big, illustrated, 1916 Year-Book—"Profits in Poultry Keeping"—will help you make more money with fowls. Tells how to raise chicks, get more eggs and make larger profits with less work. Learn about

Cyphers-Built Incubators
Sold at Low Prices

Quality unequalled. Big hatches and a guarantee that protects you; backed by 20 years of leadership. We want you to have a copy of this great guide for Poultry Raisers. Write for it today—free.

CYPHERS INCUBATOR CO., Dept. 69, BUFFALO, N.Y.
New York Chicago Dallas
Boston Kansas City Oakland

MODEL INCUBATORS WIN

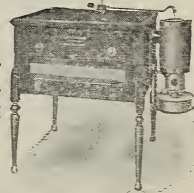
100 per cent Hatches Three Consecutive Times is the record! Fire-proof—Fume-proof. Automatic regulation—perfect circulation. Ventilation. Every part made by ourselves. Guaranteed.

200-Egg American Standard ONLY \$17
Other guaranteed Incubators \$10 to \$48

Model Coal-burning
Hover. \$15 00
Greatest offer ever made anywhere

Also Oil burning Chick Hover all metal—ever dependable. **FREE** New 128 page Poultry Book—"First Aid to Poultry Keepers." Tells how to increase the profits quick. Write for your copy today.

MODEL INCUBATOR CO.
6 Henry Street, Buffalo, N. Y.
39 Barclay St., New York



SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 815 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

50 Best Paying Varieties

Hardy Northern raised Chickens, Ducks, Geese and Turkeys. Pure-bred heaviest laying strains. Fowls, Eggs, Incubators, all at low prices. Large new Poultry Book and Breeders' Complete Guide Free. **W. A. WEBER, Box 964, Mankato Minn.**



Latest Book Profitable Poultry. Finest published; 141 pages, 210 pretty pictures and beautiful color plates. Complete instructions how to breed, hatch, feed by improved methods, describes our busy Poultry Farm with 53 pure-bred varieties, including **Runner Ducks.** Lowest price list on fowls, eggs, incubators, sprouters, etc. This great 50c book mailed for only 5 cents. **Berry's Poultry Farm, Box 97, Clarinda, Iowa**



60 BREEDS Valuable Poultry Book 22nd Annual Edition. Fine pure-bred chickens, ducks, geese and turkeys—Northern raised, hardy, beautiful. Fowls, Eggs and Incubators, low prices. America's greatest poultry farm. Write today for **Free Book.**

R. F. NEUBERT CO., Box 837, Mankato, Minn.

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. **LEWIS ROESCH, Box H, Fredonia, N. Y.**



NEW KEROSENE LIGHT

BEATS Electric
or Gasoline

10 DAYS FREE

SEND NO MONEY CHARGES PREPAID

We don't ask you to pay a cent until you have used this wonderful modern light in your own home ten days—we even pay transportation charges. You may return it at our expense if not perfectly satisfied after putting it to every possible test for 10 nights. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like oil lamp. Tests by Government and 33 leading Universities show it **Burns 50 Hours on One Gallon** common coal oil, and gives more than twice as much light as the best round wick open flame lamps. No odor, smoke or noise; simple, clean, no pressure, won't explode. Several million people already enjoying this powerful, white, steady light, nearest to sunlight. It's **GUARANTEED.**

Men Make \$50 to \$300 Per Month with Rigs or Autos
delivering the ALADDIN on our easy trial plan. No previous experience necessary: Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 37 lamps out of 51 calls." Thousands who are coming money endorse the Aladdin just as strongly. **NO MONEY REQUIRED.** We furnish capital to reliable men to get started. Ask for our distributor's plan, and learn how to make big money in unoccupied territory. Sample sent for **10 DAYS FREE TRIAL.** We want one user in each locality to whom we can refer customers. Be the first and get our special introductory offer under which you get your own lamp **FREE** for showing it to a few neighbors and sending in their orders. Write quick for **10 DAY ABSOLUTELY FREE TRIAL.** Address nearest office.

MANTLE LAMP COMPANY. 302 Aladdin Bldg. CHICAGO; NEW YORK CITY; PORTLAND, ORE.
Largest Kerosene (Coal Oil) Mantle Lamp House in the World. MONTREAL or WINNIPEG, CANADA

Won
**GOLD
MEDAL**
at World's
Exposit'n
San
Francisco

Light's Entire Room

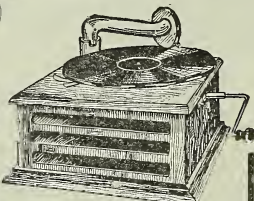
NOT



TO PAY

us till you've
tried the new **\$10.00 STRANSKY**

We send it on **FREE TRIAL** with Records. If you buy, pay \$1.00 a week and own a Phonograph for **LESS THAN HALF** price of equally good machines. Thousands used.
STRANSKY MFG. CO. 41 E. Warren St. N.Y.



FACTORY TO RIDER

Saves you big money. Buy direct and save \$10 to \$20 on a bicycle. **RANGER BICYCLES** now come in 94 styles, colors and sizes. Greatly improved; prices reduced. Other reliable models, \$11.95 up. **WE DELIVER FREE** to you on approval and 30 days trial and riding test. Our big **FREE** catalog shows everything new in bicycles and sundries. Write for it. **TIRES, lamps, wheels, parts and supplies at half usual prices.** Do not buy a bicycle, tires or sundries until you write and learn our wonderful new offers, low prices and liberal terms. A postal brings everything. **Write now.**
MEAD CYCLE CO. DEPT. W113, CHICAGO

Farmer's 1916 Bargain List STRAWBERRIES

and other small fruits, shrubs, plants, vines, etc. Not cheap stock, but a rare chance to get the best at wonderful bargain prices. Don't miss it. Sent free on request.

L. J. FARMER, Box 608, Pulaski, N. Y.

Decide for
yourself if this
book can help
you.

Sent for your
FREE
examination.

Dangerous Indigestion

Indigestion, Constipation, and the more serious ills to which they lead are so common and cause so much needless pain and suffering that Dr. John Harvey Kellogg has written a book telling how to prevent and remedy such disorders. The greatest living authority on diet and digestion here gives you the results of his forty years' experience as Superintendent of the Battle Creek Sanitarium where he has studied and treated thousands of cases of indigestion and resulting ills. "Colon Hygiene" is a book of facts—not theories. Do you want to renew your energy and stamina, stop suffering from headaches and backaches, have clear eyes, a smooth, ruddy skin, feel the exhilaration of real good health tingling through your body? If so, send this coupon now for a free examination of this splendid book. Learn how easy it is to live life anew—to acquire the dominant personality that comes from good health—to become suffused with the joy of living. All this, and more, you may get from Dr. Kellogg's book of 400 pages, which the coupon will bring to you. This free examination offer is limited, so send the coupon NOW before it is withdrawn.

Send No Money—Just the Coupon

GOOD HEALTH PUBLISHING CO.

1002 Main St., Battle Creek, Mich.

Send me, all charges prepaid, "Colon Hygiene." After examination, will remit only \$2 or return the book if I do not desire it. (Write your name and address in the margin)

YOUR SUCCESS IN BEEKEEPING DEPENDS ON the kind of bees you keep and how you handle them.

Blanke's 68-page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be profitable in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper, you ought to get the Blanke Bee Book—send for it today.

Fine Poultry Book also Free

If you keep poultry too, ask us for illustrated poultry book; full of valuable pointers on poultry-raising as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., Pioneers in Bee, Poultry, and Dairy Supplies, 207 Washington Ave., ST. LOUIS, MO.

Bee book free

More Profit

THROUGH better, more intelligent, more economical use of good tools will come the profit that is so hard to find each year on many crops. Plant right so you will get full benefit. Work faster with better tools so you can cultivate and spray often. Study whether there isn't some tool that will do your work better.

IRON AGE

Potato machinery, spraying machinery, garden tools, etc., are built to give you just what you need to do things right. Almost any combination you can think of in each line. Eighty years of factory and farm experience behind their manufacture.

Ask your dealer to show them, but write us for separate booklets fully describing lines in which you are interested. Let us make good our claims.

Bateman M'g Co. Box 206, Grenloch, N. J.



Combined
Drill and
Wheel Hoe



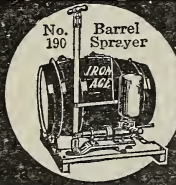
100 per cent
Potato Planter



Riding
Cultivator
Steel Frame



Seven-and-a-half
foot Weeder



No. 190
Barrel
Sprayer



Horse Hoe and
Cultivator

Garden Seed Drills
Wheel Hoes
Potato Planters
Weeders & Seeders
Riding Cultivators
Walking Cultivators
Potato Sprayers
Bucket, Barrel and
Power Sprayers
Potato Diggers
Cornstubb Cutters
Fertilizer Distributors
Row Makers
Cotton Planters
Corn, Bean and Pea
Planters
Asparagus Ridgers
Land Rollers

Have You a Garden?

Then these books will interest you. They are up-to-date manuals, interestingly written, thoro, and practical. All 5 x 7½ inches, bound in cloth unless otherwise stated, and all well illustrated.

Asparagus.—By F. M. Hexamer. It is easy to learn how to grow this interesting and delicious vegetable. 166 pages. 35 cents postpaid.

The New Rhubarb Culture.—By J. E. Morse. A complete guide to dark forcing and field culture. 130 pages. 45 cents postpaid.

Celery Culture.—By W. R. Beattie of the Department of Agriculture. 143 pages. 45 cents postpaid.

New Onion Culture.—By T. Greiner. A complete guide in growing onions for profit. 114 pages. 45 cents postpaid.

The Small Fruit Cultivist.—By Andrew S. Fuller. An old book frequently revised to bring it up to date. Practical instructions for such fruits as the strawberry. 290 pages. 75 cents postpaid.

The Nut Cultivist.—By Andrew S. Fuller. How to cultivate all kinds of edible nut trees. 285 pages. \$1.25 postpaid.

Squashes and How to Grow Them.—By Gregory. Good reading for almost anybody, whether they grow squashes or not. Paper bound. 25 cents postpaid.

Gleanings in Bee Culture
Medina, Ohio

NEW STRAWBERRIES CATALOG FREE to all
Reliable, interesting and instructive—All about the New
Everbearers and other important varieties. Address
C. N. FLANSBURGH & SON, JACKSON, MICH.

KITSELMAN FENCE



HORSE-HIGH, BULL-STRONG, PIG-TIGHT

Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices.

Here's a few of our big values:

26-inch Hog Fence - 12 cts. a rod.

47-inch Farm Fence - 18 cts. a rod.

48-inch Poultry Fence - 24 cts. a rod.

Special Prices on Galv. Barbed Wire.

Our big Catalog of fence values shows 100 styles and heights of Farm, Poultry and Lawn Fence at money-saving prices. Write for it to-day. It's free.

KITSELMAN BROS. Box 21 Muncie, Ind.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

Cultivate Horseradish.....

Garden, Field, or Farm

Increasing Demand; Large Profits

100 Root Sets, with Full Information, \$1

Write for list of our \$1 Friend Makers, consisting of all kinds of fruit trees, berries, and roses. Money wanted in payment for nursery stock.

VALLEY FARM CO., NEWBURGH, N. Y.

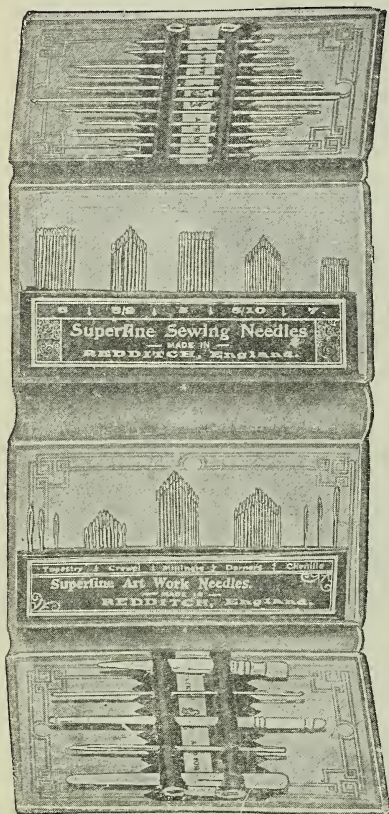
STRAWBERRY Plants

that will produce a crop in June; \$1.00 per 100, \$8.00 per 1000. Seed catalog tells what to plant; how to plant; how to destroy every bug and insect. Free.

P. J. Jersey . . . West Park, Ohio

"The Dandy" Needle-book

Number Seven



This Needle-book is well bound in leatherette and is artistically designed and embossed. It contains 142 USEFUL SEWING ARTICLES.

A NEEDLE FOR EVERY NEED

- 75 Gold-eyed Sewing Needles
- 51 Art Work Needles, Viz.:
- 15 Silk and Cotton Darners
- 15 Milliners' Needles
- 15 Crewel or Embroidery
- 5 Rug or Tapestry
- 3 Chenille Needles
- 1 Bone Stiletto
- 1 Bone Tape or Ribbon
- 1 Bone Crochet
- 1 Steel Crochet
- 1 Steel Bodkin or Tape
- 1 Punch Work
- 2 Medium Wool Darners
- 2 Fine Wool Darners
- 2 Medium Yarn Darners
- 2 Fine Cotton Darners
- 2 Medium Cotton Darners

There is nothing a housewife appreciates more than good needles, whether she sews much or little. THE DANDY SEWING SET will appeal to every woman as just the thing to use when traveling or visiting or to tuck into one's work-basket, as it can be folded up like a book. This set cannot be purchased in any store. Read below how it may be secured.

Send us ONE NEW YEARLY subscription to GLEANINGS with remittance of \$1.00, and we will send postpaid a DANDY NEEDLE CASE as PREMIUM.

Canadian postage 30 cts. extra. Foreign postage 60 cts. extra.

Gleanings in Bee Culture, Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Clover honey of the finest quality in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—White-clover comb honey, extracted, in 60-lb. cans. HENRY HETTEL, Marine, Ill.

Choice well-ripened clover honey in 60-lb. cans. J. F. MOORE, Tiffin, Ohio.

Fancy extracted clover honey at 9 cts. per lb. Sample 10 cts. JOS. HANKE, Port Washington, Wis.

Clover-heartsease-goldenrod blend. Light amber, best quality, prices right. Sample, 10 cts. E. S. MILLER, Valparaiso, Ind.

FOR SALE.—Basswood and clover extracted honey in 160-lb. kegs and 60-lb. cans. B. B. COGSHALL, Groton, N. Y.

Amber honey, 7½ cts. per lb.; sage honey, 8½; clover honey, 10 cts. per lb. in 60-lb. cans. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—White-clover honey in 60-lb. cans, packed two to the case, now granulated, at 9 cts. per lb. J. E. HARRIS, Morristown, Tenn.

FOR SALE.—10,000 lbs. white-clover extracted honey in new 60-lb. net tin cans, 2 in a case, for shipment, sample free. Address D. R. TOWNSEND, Northstar, Mich.

Finest clover honey, 8½ cts.; buckwheat, 8, in cases of two 60-lb. cans; 6-lb. can postpaid in second zone, \$1.00. Satisfaction guaranteed. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Finest quality of white-clover-basswood blend extracted honey in new 60-lb. cans. State how much you can use, and I will quote you price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

Special prices on a quantity of near-water-white white-clover extracted honey in new cans and cases. Money cannot buy better honey than this. A free sample will convince you. E. D. TOWNSEND, Northstar, Mich.

Fine new-crop clover and basswood honey at 9 cts. in new 60-lb. cans with 3-in. screws. Also in gallons and smaller, for family and store trade. State quantity wanted. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired, and state quantity you can use. DADANT & SONS, Hamilton, Ill.

RASPBERRY HONEY.—Thoroughly ripened by the bees, very thick, and of fine flavor; in new 60-lb. tin cans, \$6.00 per can. We have a little slightly mixed with buckwheat at \$5.00 a can. Sample of either kind by mail for 10 cts., which may be applied on order for honey. Write for prices on large lots. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—Amber extracted honey, well-ripened and mild-flavored, 6 cts. Honey-dew honey for baking or bee-food (cheaper than sugar) 5 cts. by the case; ten cases, 4½; 25-case lots, 4 cts. per pound; two sixty-pound cans to the case; also have some fall comb honey for \$2.25 to \$2.75 per case of 24 sections. H. G. QUIRIN, Bellevue, Ohio.

Clover, basswood, amber, and buckwheat honey in 60-lb. cans and 165-lb. kegs at 7 to 9 cts.; also in 3, 5, and 10 pound friction-top pails. State kind and quantity wanted. C. B. HOWARD, Geneva, N. Y.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Your own beeswax worked into "Weed Process" foundation at reasonable prices.

SUPERIOR HONEY CO., Ogden, Utah.
"Everything in bee supplies."

FOR SALE

HONEY LABELS at money-saving prices. Samples free. LIBERTY PUB. CO., Sta. D, box 4E, Cleveland, O.

HONEY LABELS.—All styles. Catalog with prices free. EASTERN LABEL CO., Clintonville, Ct.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands. CHARLES A. HENRY, Eden, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

SEED CORN.—Highest germination; best varieties other farm seed; 1200 acres; 40-page catalog. W. N. SCARFF, New Carlisle, Ohio.

Good second-hand 60-pound cans, 25 cts. per case of two cans, f. o. b. Cincinnati. Terms cash. C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Gramm alfalfa and yellow biennial sweet clover, dwarf, grows in all soils and climates. JOHN FREDRICH, Sturgis, S. D.

FOR SALE.—500 cases with empty 5-gallon cans, good as new at 25 cts. each. GEORGE RAUCH, West New York, N. J.

FOR SALE.—If you can use 100 lbs. or more of Dadant's foundation, any grade, direct from factory, write me for reduced price. F. W. LESSER, Rt. 3, East Syracuse, N. Y.

BEE SUPPLIES.—Write for prices before buying. We can save you money. We make a specialty of special size hives and frames to order. THE M. C. SILSBEE CO., Rt. 3, Cohocton, N. Y.

FOR SALE.—50 Falconer's dovetailed 10-frame supers holding 35 3½ x 5 x 1½-inch plain sections, complete with sections and foundation, worth \$1.00 each; 55 cts. each, or \$25 for the lot, good as new. L. F. HOWDEN, Fillmore, N. Y.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

FOR SALE.—Beekeepers' supplies, such as winter cases, hives, sections, covers, bottoms, bodies, supers, brood-frames of every description, shipping-cases, section-holders, comb foundation, smokers, etc. Get my prices before placing your order. R. H. SCHMIDT, Rt. 3, Sheboygan, Wis.

FOR SALE.—At all times, good second-hand empty five-gallon honey-cans in A-1 condition, packed two to a case, at 25 cts. per case, terms cash, f. o. b. towns of our various factories. NATIONAL BISCUIT COMPANY (Purchasing Department), 409 West 15th St., New York City.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—One German wax-press in good condition except followers, \$4.00, one old-model two-frame Cowan reversible extractor, fair condition, \$3.00. THE M. C. SILSBEE CO., Rt. 3, Cohocton, N.Y.

FOR SALE.—200 complete hives with covers and bottom-boards, 10-frame, with all drawn combs; free from disease; factory-made hives; \$2.50 each, complete. GEORGE BRANT, Smithville, Ontario, Can.

PATENTS

PATENTS THAT PAY: \$600,812.00 clients made. Protect your ideal! Send data. Advice and two wonderful Guide Books free. Highest references.

E. E. VROOMAN & Co., 834 F, Washington, D. C.

POULTRY

BABY CHICKS.—Barrows contest entries furnish us a son to head one pen; also Wycoff stock. Prices reasonable. LINESVILLE PULLET HATCHERY, Linesville, Pa.

White Indian Runners and Mammoth White Pekin ducks, range bred, show stock, and prize-winners. Eggs for hatching, \$2.00 for 13; \$4.00 for 30. E. B. BROWN, Box 323, White Plains, N. Y.

Poultry Paper, 44 125-page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents.

POULTRY ADVOCATE, Dept. 56, Syracuse, N. Y.

\$\$\$\$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with our Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars.

PROVIDENCE SQUAB CO., Providence, R. I.

FOR SALE.—Winter-laying White Wyandottes. 200-egg strain, built up after years of careful selection and breeding from famous prize-winning stock. Setting eggs, \$1.50 to \$5.00 for 15 according to pen. Day-old chicks, in lots of ten or more, 25 cts. each. Place orders now for early delivery.

C. E. BLANCHARD, Youngstown, Ohio.

WANTS AND EXCHANGES

WANTED.—To buy potatoes in car lots.

F. W. DEAN, New Milford, Pa.

WANTED.—50 to 200 colonies of bees; mention price. A. DINGEMANSE, 125 Clayton St., Denver, Col.

WANTED.—A second-hand No. 4 Barnes hand and foot power saw rig. J. G. CRISLER, Walton, Ky.

WANTED.—To buy or lease, 100 to 200 colonies of bees and location. JACOB PROBST, East Nicolaus, Cal.

WANTED.—To exchange lath mill and bolter, 24-inch attrition feed-grinder, Economist steam-boiler, 12 H.P., for machinery to make honey-sections or engine lathe. GEO. RALL MFG. CO., Galesville, Wis.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR RENT.—House and 4 acres of land on Lake Pasadena, 4 miles south of Dade City, Fla.

STEEN FREEMAN, Wamsley, O.

SOUTHERN LANDS are low in price, but high in productive value, make two to four crops a year, and give largest profits in grain, vegetables, fruits, live stock, and dairying. Unsurpassed climate, good markets. Publications on request.

M. V. RICHARDS, Commissioner, Room 27, Southern Railway, Washington, D. C.

OHIO, WEST VIRGINIA, AND VIRGINIA FARMS offer opportunities for you; \$20.00 per acre up. Easy payments. Mild climate. No long cold or hot spells. Social Life, Fertile Soil, good markets, high prices. On Railroad. Convenient to Trains. Write for free magazine and other information. F. H. LABAUME, Agr. Agt. Norfolk & Western Rwy., 246 N. & W. Bldg., Roanoke, Va.

MISCELLANEOUS

PAPAYA, "tree melon." Seed and magazine 3 mos., 15 cts. FULFORD FARMER, Fulford, Fla.

Maple syrup in 6-gal. lots at \$1.15; larger lots, lower price. L. W. KELLOGG, Rt. 1, Sharon Center, O.

White sweet clover, unhulled, recleaned, in good sacks, 60 lbs., \$7.00; 120 lbs., \$13.25; 500 lbs., \$52.50; 1000 lbs., \$100, F. O. B. Delta.

T. F. ENSLEY, Read, Cal.

WAIT! Before ordering, get our 1916 pure-seed book, printed in four colors; describes our Royal Purple Grand Champion Pure Tested field, vegetable, and flower seeds, fruit-trees, vines, shrubs; plants at lowest wholesale cut prices.

GALLOWAY BROS., Waterloo, Iowa.

FOR SALE.—7000 lbs. unhulled white-sweet-clover seed in seamless sacks; 91 lbs. of seed for \$12.45; less than 91 lbs., 14 cts. per lb., and sacks, 25 cts.; 91 lbs. in a two-bushel sack is all the sample of seed needed. It is not crushed in unhulling; 30 lbs. per bushel is the standard for unhulled seed.

A. H. DAVIES, Whitewood, S. D.

Choice Santa Clara Valley Dried Fruit from grower to consumer at following prices, f. o. b. Saratoga: Prunes, 10-lb. sack, \$1.10; apricots, 10-lb. sack, \$1.35. Maximum express rate on dried fruit, 4 cts. per pound in U. S. except points served only by Southern Express Co. Mr. E. R. Root has visited our ranch, recommends our product, and vouches for our reliability. HERMAN A. CLARK, Saratoga, Santa Clara Co., Cal. See special notice, page 5.

BEEES AND QUEENS

FOR SALE.—Fifty colonies of bees.

J. R. MARVE, Bunceton, Mo.

FOR SALE.—175 colonies of bees with good location.

F. M. SNIDER, Collbran, Col.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Texas.

FOR SALE.—Three-banded Italian queens for season of 1916. Watch for large ad. with prices later.

N. FOREHAND, Ft. Deposit, Ala.

Bees by the pound shipped anywhere in the U. S. or Canada. Safe arrival guaranteed. Capacity, 100 lbs. a day. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—60 colonies bees, wired H. frames, modern equipment; no disease.

S. D. CLARK, Wezerhauser, Wis.

FOR SALE.—At a bargain, 100 colonies. Good location. Full sheets. Up-to-date outfit for extracted honey. 18626 "BEE MAN," Williamsport, Pa.

Northern-bred Italian queens, untested, \$1.00; select tested, \$1.50. Bees by pound. Safest plans. "How to Introduce Queens, and Increase," 25 cts. List free. E. E. MOTT, Glenwood, Mich.

WANTED.—Single man experienced in bee culture for coming season. Must understand bees in every form, and must not drink. White City Apiary, J. W. HATTS, Proprietor, Gunnison, Miss.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

FOR SALE, or will take partner that is willing to go half, 120 colonies Italian bees, house, tools, empty hives, 160 acres land, homesteading, well, \$1000 or go half. J. C. HICKSON, Bisby, Ariz.

FOR SALE.—25 hives Italian bees in Danzenbaker hives, \$4.00 per hive, with supers; nine colonies in eight-frame hives; all in good condition; no disease. B. F. HAFORD, bx 63, Asherville, Mitchell Co., Kan.

Three-banded Italians, ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June, 75 cts. each; 6 for \$4.25; 12 for \$8.00. For larger lots write CURD WALKER, Jellico, Tenn.

Shipped one order of 409 lbs. of bees; 133 3-lb., and 2 5-lb. packages with queens. They go thru to party in Ontario, Canada, in fine shape.

M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. LEATH, Corinth, Miss.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnetts, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

BEES.—250 colonies and equipment, near Sacramento. No disease. Also 40-acre mountain ranch in Sonoma Co., with virgin redwood trees up to 8 ft. in diameter; sell separately, or both for \$1600. E. L. SECHRIST, Fair Oaks, Cal.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, Wilcox St., Binghamton, N. Y.

FOR SALE.—Northern-Ontario-Bee-Diseaseless-District Bees. Hardest, healthiest. Prices will suit you. Write now to B. F. JOHNSON, 7901 Franklin Ave., Cleveland, O.; after April 1 to RAHN BEE AND HONEY CO., Hailbury, Ont.

We are booking orders for bees in 2-lb. packages, \$1.75; and 3-lb. packages, \$2.50. Young untested Italian queens, 75 cts. each, or \$8.00 per dozen. Bees are free from disease, and safe delivery guaranteed. Orders delivered after April 20. Write for circular. IRISH & GRESSMAN, Jesup, Ga.

Having secured breeders of Dr. Miller we are offering daughters of his famous strain of Italians at the low price of \$1.50 each. Queens of our own strain at 75 cts. each; 1 lb. of bees, \$1.50; 2-frame nuclei, \$2.25; full colony in 8-frame hive at \$6.50; 10-frame, \$7.50; 200 colonies for spring delivery at \$6.00 each, 10-frame hives.

THE STOVER APIARIES, Mayhew, Miss.

A few choice three-banded Italian queens for early delivery. Booking orders now. Tested queens, \$1.50 each; breeders, \$5.00 to \$10. Untested, after March 15 to 25, \$1 each. O. E. MILAM, Moore, Tex.

M. C. Berry & Co., Successors to Brown & Berry, are booking orders for spring delivery. This firm is the largest and most successful shipper of Select Bred Three-banded Italian queens and bees in packages in the South. Write for circular and price list. write us. M. C. BERRY & Co., Hayneville, Ala.

FOR SALE.—400 colonies Moore strain bees in good location. Combs built on full sheets of foundation. Everything in first-class shape. Principal source of honey is alfalfa. Located in the Rio Grande Valley, under the largest irrigation project in the United States.

THE CROWN APIARIES, Mesilla Park, N. M.

QUEENS.—Italians exclusively; golden or leather-colored. One select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. Early swarms of young bees in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25; queen extra. For ten or more, write for price. Also nuclei and full colonies. I am booking orders now, with 10 per cent deposit for delivery March 15 and after. Safe arrival, prompt service, and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—1-lb. swarm (shipping weight 3 lbs.) Italian bees, \$1.50, without queen, March 20 or later. Untested Italian queen, 75 cts. after April 10; tested Italian queen, \$1.25 after March 20. No reduction for less than 50; 1 to 49 2-lb. bees in package, no queen, \$2.50 each; 50 to 500 2-lb. bees in packages, no queen, \$2.37. Bred from best honey-gatherers; no disease. Safe arrival and satisfaction guaranteed. We are now booking orders with ¼ payment, balance before shipment. "The early swarms get the honey." We can care for your wants for 1916. W. D. ACHORD, successful package shipper and queen-breeder, Fitzpatrick, Ala., U. S. A.

FOR SALE.—Italian bees by the pound, and select-bred Italian queens. One-pound swarms without queens, \$1.25 each; 2-lb. swarms without queens, \$2.35 each; 3-lb. swarms without queens, \$3.35 each, and 5-lb. swarms without queens, \$5.35 each. If queens are wanted with swarms, add price as according to price list below. Untested, warranted purely mated queens, 75 cts. each; tested queens, \$1.25 each. All queens are bred according to our plan of breeding only from colonies or queens of the highest standard—those that have made the best record in pounds of honey. These select colonies are the choice of over 1000 hustling honey-producing colonies. Every queen we warrant to be purely mated or we replace her free of charge. Every pound of bees we guarantee to deliver alive and in good shape, and full weight. We have no disease. Safe arrival and satisfaction we guarantee on both queens and bees in packages. For prices on wholesale lots of either queens or bees by the pound, M. C. BERRY & Co., Hayneville, Ala.

HELP WANTED

WANTED.—Young man to work with bees as an assistant, or one capable of taking charge of out-yards. State age, experience, and wages expected. CHARLES ADAMS, Rt. 4, Greeley, Col.

WANTED.—Two young men to help in the apiaries for 1916; prefer young men who want to learn the bee business and are willing to work for reasonable wages and board. I want no one who smokes. Address P. O. BOX 124, Wapato, Wash. 12558

WANTED.—A single energetic man, strictly sober, some experience with bees, to take charge of an apiary and small ranch on shares; possibility of running 400 colonies of bees. A splendid opportunity for capable party.

DR. W. M. COPENHAVER, Helena, Mont.

WANTED.—Robust western young man, of good habits, honest and industrious, at moderate wages and board, who has had some experience handling bees for extracted honey. State your case fully, give references, and wages expected, in first letter.

IRA C. FARNEY, Mesilla Park, N. M.

WANTED.—Experienced beeman familiar with conditions in Georgia or Florida, to handle 75 to 100 colonies, on share basis. Can be employed in orange-grove work, regular terms, when not busy with bees. Good opening for the right man. References required. Box 896, Sanford, Fla.

WANTED.—Two or three industrious young men, fast workers, and of clean mental and body habits, for the season of 1916. Will run between 1000 and 1200 colonies for the production of comb honey. Give age, weight, experience, and wages in first letter. White City Apiarist, J. G. WALLER, Rigby, Ida.

HELP WANTED.—Can take two clean minded and bodied young men as student help for the season of 1916. Board free for help given, and something more if a good season and help does well. One understanding an auto preferred. Address R. F. HOLTERMANN, Brantford, Ontario, Canada.

SITUATIONS WANTED

Single man, age 29, beekeeper, wants position in apiary. No bad habits. All letters answered.

M. McLOVICH, Box 243, Rock Springs, Wyo.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, \$1.00; 12 for \$10.00, return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

QUIRIN's superior northern-bred Italian bees and queens are hardy, and will please you. More than twenty years a breeder. Orders booked now. Free circular.
H. G. QUIRIN, Bellevue, Ohio.

QUEENS.—Improved three-banded Italian bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

TRADE NOTES

SOME BOOK BARGAINS.

We have four copies of the *Amerikanische Bienenzucht* by Hans Buschbauer, a book on beekeeping written in German. Illustrated; 5½ x 8 inches; 138 pages. Cloth. Price, to close out, 25 cents each, postpaid.

"Bee Hunting," by J. R. Lockard, is a book of valuable information for bee-hunters; tells how to line bees to trees and transfer the colonies. Illustrated; 5 x 7 inches; 72 pages. Paper. Price, to close out, 25 cents postpaid.

The *Secrets of Success for Boys and Young Men*, by A. J. Kendall, M. D., is a late work of guidance on sex questions and other matters of hygiene. It has been highly endorsed by a number of eminent men and women; 4½ x 6½ inches; 128 pages; paper. To close out, 25 cents postpaid.

The *Standard Domestic Science Cook-book*, compiled and arranged by William H. Lee and Jennie

A. Hansey, a new and original system of classification with 1500 recipes. Just the thing for your wife. Illustrated; 6 x 9 inches; 550 pages. Cloth. To close out, \$1.00 postpaid.

The *Book of Wonders*, gives plain and simple answers to the thousands of everyday questions that are asked, but which all should be able to, but cannot answer. Fully illustrated with hundreds of educational pictures of the wonders of nature and civilization; 7 x 10 inches; 600 pages. Cloth. To close out, \$1.00 postpaid.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0147, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0214, 2½ x 10 hexagonal light medium-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0222, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0226, 2½ x 10 hexagonal medium-brood mill in fair condition; a few bruised cells. Price \$18.00.

No. 0230, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0231, 2½ x 10 hexagonal medium-brood mill in fairly good condition. Price \$20.00.

No. 0232, 2½ x 10 hexagonal medium-brood mill: not very good cells; somewhat bruised. Price \$15.

No. 0233, 2½ x 10 hexagonal medium-brood mill in poor condition; cells bruised. Price \$14.00.

No. 0234, 2½ x 6 extra-thin-super mill in very good condition. Price \$12.00.

No. 0235, 2½ x 10 hexagonal light-brood mill in good condition. Price \$22.00.

No. 0236, 2½ x 6 extra-thin-super mill in good condition. Price \$12.00.

No. 0237, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0238, 2½ x 6 thin-super mill in fair condition. Price \$10.00.

No. 0239, 2½ x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.

No. 0240, 2½ x 10 medium-brood mill, hexagonal cell in fair condition. Price \$17.00.

No. 0241, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0242, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0243, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$20.00.

No. 0244, 2 x 10 round-cell medium-brood mill in good condition. Price \$14.00.

THE A. I. ROOT COMPANY, Medina, Ohio.

I am Anxious to Serve You

L. W. Crovatt, ^{Box 134} Savannah, Ga.

Root's Goods Exclusively

Warehouse, River and Abercorn Streets

1916 Catalog sent on request

Beauty PATTERN

**Twenty-five Cents for New
Subscription to Gleanings
Six Months and Premium
Pattern**

Select any Pattern as premium, sending 25 cents in stamps for a new six-months' subscription to GLEANINGS IN BEE CULTURE. Be sure to give the pattern number and size desired, and the complete address of the new subscriber whose order you send.

Canadian postage, 15c extra;

Foreign postage, 30c extra.

Selling price of Patterns, 10 cents each.

**The A. I. Root Company
Medina, Ohio**

1622.—Girl's Dress. Cut in 4 sizes: 4, 6, 8, and 10 years. It requires $2\frac{1}{2}$ yards of 44-inch material for a 4-year size. Price 10 cents.

1600.—Child's Envelope Night Dress. Cut in 5 sizes: 6 months, one year, 2, 4, and 6 years. Size 2 will require $2\frac{1}{2}$ yards of 36-inch material. Price 10 cents.

1627.—Ladies' Dress, with Body Lining or Yoke Portions. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $6\frac{1}{2}$ yards of 44-inch material for the dress, without ruffles. With ruffles, it requires $7\frac{3}{4}$ yards, for a 36-inch size. The skirt measures about $3\frac{2}{3}$ yards at its lower edge. Price 10 cts.

1610-1618.—Ladies' Costume. Waist 1610 cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It will require $2\frac{1}{2}$ yards of 44-inch material for a 36-inch size. Skirt 1618 cut in 6 sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. It requires $4\frac{1}{4}$ yards of 44-inch material for a medium size, which measures about $3\frac{2}{3}$ yards at the foot. This calls for two separate patterns, 10 cents for each pattern.

1626.—Junior's Suit. Cut in 3 sizes: 12, 14, and 16 years. Size 14 requires $4\frac{3}{4}$ yards of 44-inch material. Price 10 cents.

1608.—Girl's Dress. Cut in 4 sizes: 6, 8, 10, and 12 years. It requires $4\frac{1}{4}$ yards of 36-inch material for a 10-year size. Price 10 cents.

1604.—Ladies' Apron with or without Belt. Cut in 3 sizes: Small, medium, and large. It requires $4\frac{1}{2}$ yards of 36-inch material for a medium size. Price 10 cents.

1319.—Ladies' House Dress with or without Yoke. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $5\frac{3}{4}$ yards of 44-inch material for a 36-inch size. The skirt measures 3 yards at its lower edge. Price 10 cents.



"Hats Off to the New Management"

writes a Mission, Texas, customer

The old reliable line of Root's Beekeepers' Supplies with our new system of business management assures Texas beekeepers of service such as they have never before experienced.

Mr. B. I. Solomon, who is now in charge, has been with The A. I. Root Company for some years and knows their method of doing business.

We intend to carry a large and complete stock of supplies, and we also have our Weed foundation machines in shape to care for all orders promptly.

Give us an opportunity to convince you of our service.

Toepperwein & Mayfield Co.

Nolan and Cherry Sts.

San Antonio, Texas